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AIRCASTLE
MODEL 132564

AIRCASTLE
MODEL 132564

AIRCASTLE MODEL 132564

TRADE NAME	Aircastle, Model 132564
SUPPLIER	Spiegel Inc., 1061 W. 35th St., Chicago, Illinois
TYPE SET	Battery Operated Superheterodyne Receiver
TUBES(FOUR)	Types 1A7GT Converter, 1N5GT IF Amp., 1H5GT DET-AVC-AF, 3Q5GT Power Output
POWER SUPPLY	1.5 Volts "A" Supply and 90 Volts "B" Supply in Pack Form.
RATING:	248 MA @ 1.5 Volts DC and 13 MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1725KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer parallel with base of dial. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to rear stator of tuning gang. Low side to chassis.	455KC	Tuning gang fully open	Across voice coil	A1,A2, A3,A4	Adjust for maximum output.
2.	250MMF	High side to antenna lead. Low side to chassis.	1725KC	"	"	A5	" " " "
3.	250MMF	"	1400KC	Tune for max. signal	"	A6	Adjust for maximum output. This trimmer may not be in some models.

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DATE 9/49 4917-1 SET #69 FOLDER #1

PARTS LIST AND DESCRIPTIONS

AIRCASTLE
MODEL 132564

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		AIRCASTLE PART No.	STANDARD REPLACEMENT		
V1	Converter	1A7GT	1A7GT	7Z	
V2	IF Amp.	1N5GT	1N5GT	5Y	
V3	DET.-AVC-AF	1H5GT	1H5GT	5Z	
V4	Power Output	3Q5GT	3Q5GT	7AF	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	AIRCASTLE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	
C1	4	150	A18-273	PRS150/4	BR415		M-4-150	UT-41	RF Bypass
C2	.05	200	A16-152	P288-05	GT2S5		ST-4-05	TM-15	" "
C3	4.7		A83-355	1468-000005	5W5V5	NPOK-5	MO.5-55	MS-55	RF Coupling
C4	.05	200	A16-152	P288-05	GT2S5		ST-4-05	TM-15	AVC Filter
C5	50	500	A16-175	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	Osc. Grid Cap.
C6	.02	600	A16-150	P688-02	GT6S2		ST-6-02	TM-12	Conv. Screen Bypass
C7	.02	600	A16-150	P688-02	GT6S2		ST-6-02	TM-12	IF Grid Filter
C8	250	500	A15-176	1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	Diode Filter
C9	.004	600	A16-153	P688-004	GT6D4	GP2M-005	ST-6-004	TM-24	Audio Coupling Note
C10	250	500	A15-176	1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	AF Plate Bypass
C11	.01	200	A16-156	P488-01	GT2S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C12	.002	600	A16-155	P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	Output Plate Bypass

Note. Some models use .005MFD in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	1 Meg.	½	A24-170	Q13-137	AM-63-Z	Volume Control
B	Shaft			Not Req.	KSS-3	Attach to R1A Per Instructions
C	Switch			76-1	SW-A	" " " " "

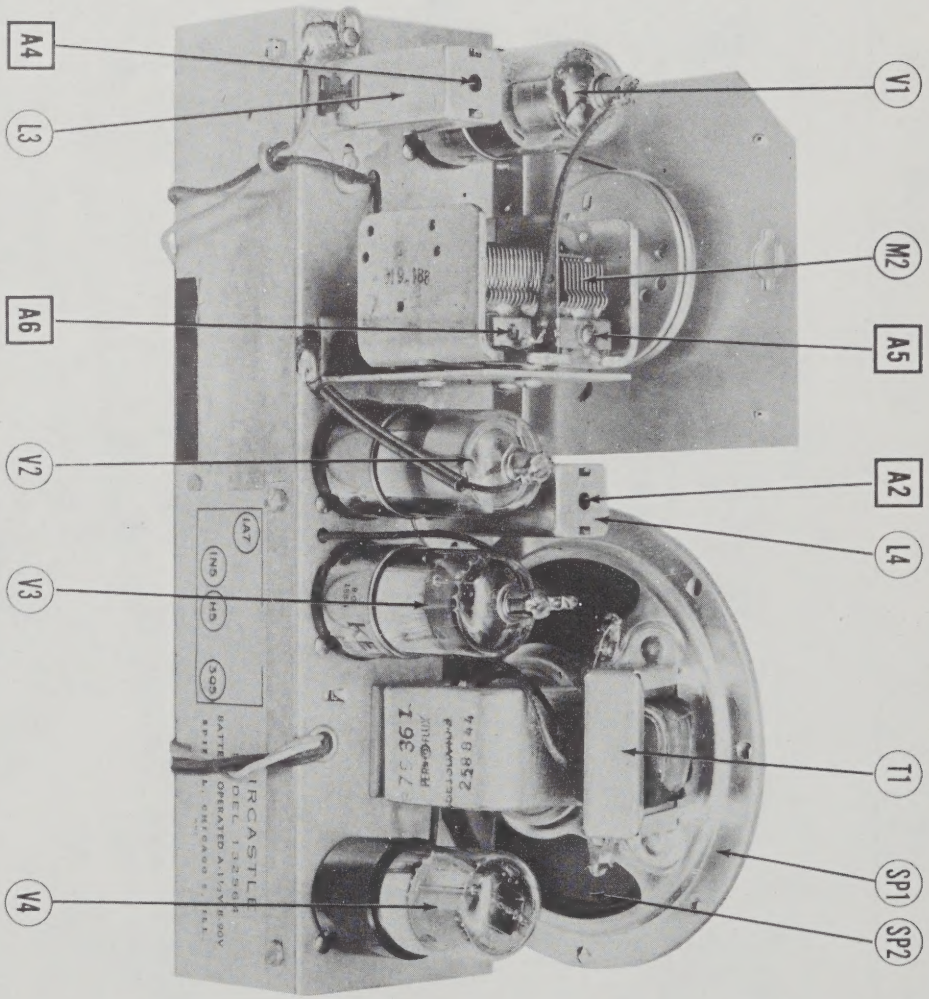
RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRCASTLE PART No.	IRC PART No.	
R2	220KΩ	½	A60-667	BTS-220K	Osc. Grid
R3	47KΩ	½	A60-685	BTS-47K	Converter Screen
R4	2.2 Meg.	½	A60-684	BTS-2.2 Meg.	IF Grid
R5	2.2 Meg.	½	A60-684	BTS-2.2 Meg.	AVC Network
R6	10 Meg.	½	A60-663	BTS-10 Meg.	AF Grid
R7	470KΩ	½	A60-662	BTS-470K	AF Plate
R8	1 Meg.	½	A60-668	BTS-1 Meg.	Output Grid
R9	390Ω	½	A60-665	BW-½-390	Bias

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRCASTLE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	10KΩ	3.2Ω	330Ω	.4Ω	A80-232	A-3879	RO-16	A-2932	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: AIRCASTLE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
SP1	FIELD PM	V. C. IMP. 3.2Ω	B79-352	ST-105 #† MOD.P5-X	5A07#	# Remount output transformer. † Drill & tap magnet frame.
SP2	CONE DIA. 4 1/2"	V. C. DIA. 9/16"				

R F COILS

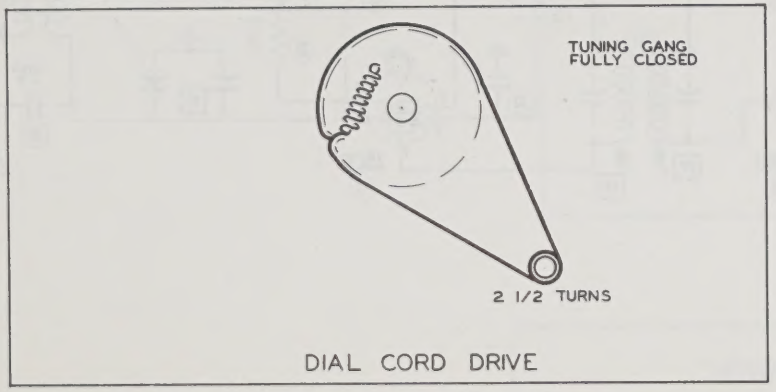
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIRCASTLE PART No.	MEISSNER PART No.
L1	Ant. Coil	60Ω	5.2Ω	A10-485	
L2	Osc. Coil	5Ω	2Ω	A10-505	14-1060
L3	Input IF	24Ω	24Ω	A10-506	16-6668
L4	Output IF	24Ω	24Ω	A10-506	16-6669

BATTERIES

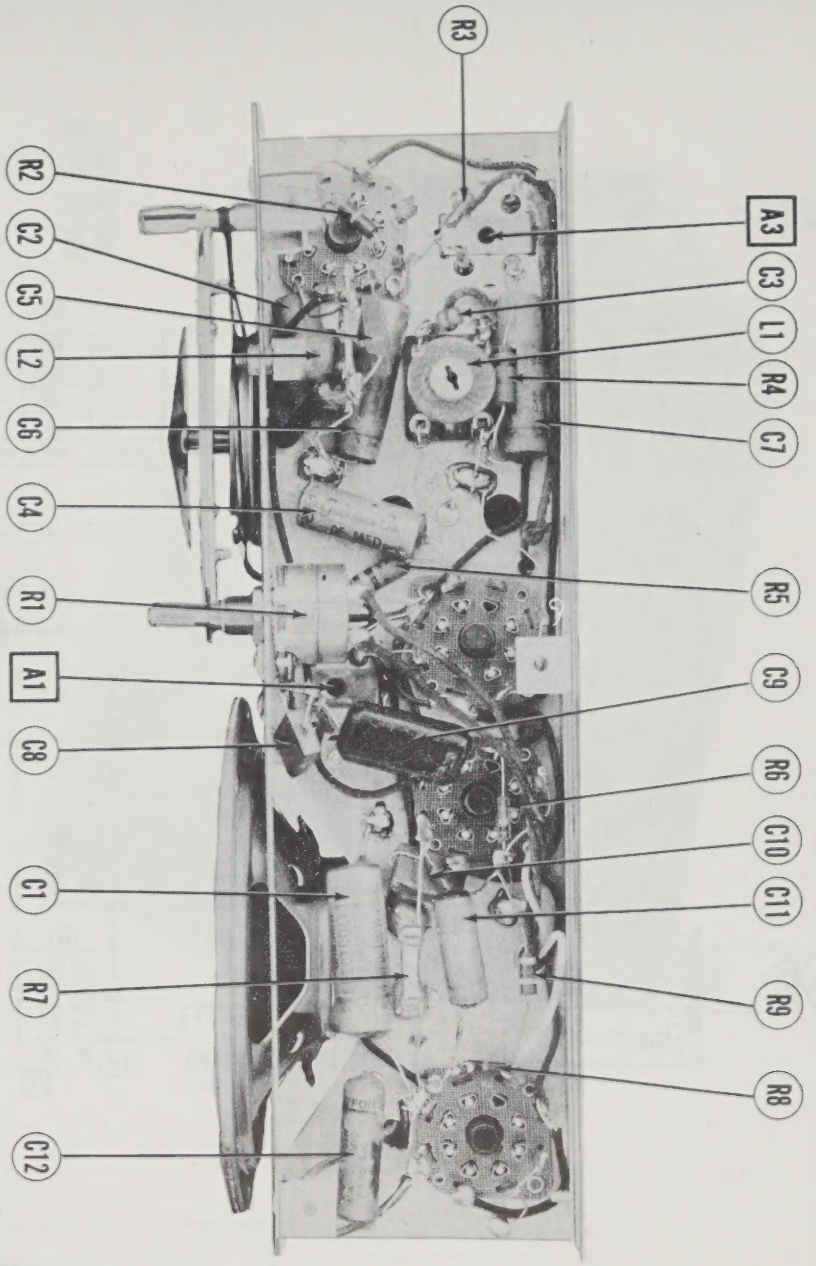
ITEM No.	VOLTAGE	AIRCASTLE PART No.	REPLACEMENT DATA: EVEREADY "A"	EVEREADY "B"	EVEREADY "A-B"	BURGESS "A"	BURGESS "B"	BURGESS "A-B"	INSTALLATION NOTES
M1	1.5V "A" 90V "B"	1491			759			17GD60	

MISCELLANEOUS

ITEM No.	PART NAME	AIRCASTLE PART No.	NOTES
M2	2 Gang Var. Cap.	B19-188	(50-492MMF, 44-272MMF)
	Dial Scale	B67-515	
	Dial Pointer	58-31	
	Dial Crystal	48-21	
	Cabinet	D42-437	
	Knob	A52-245	

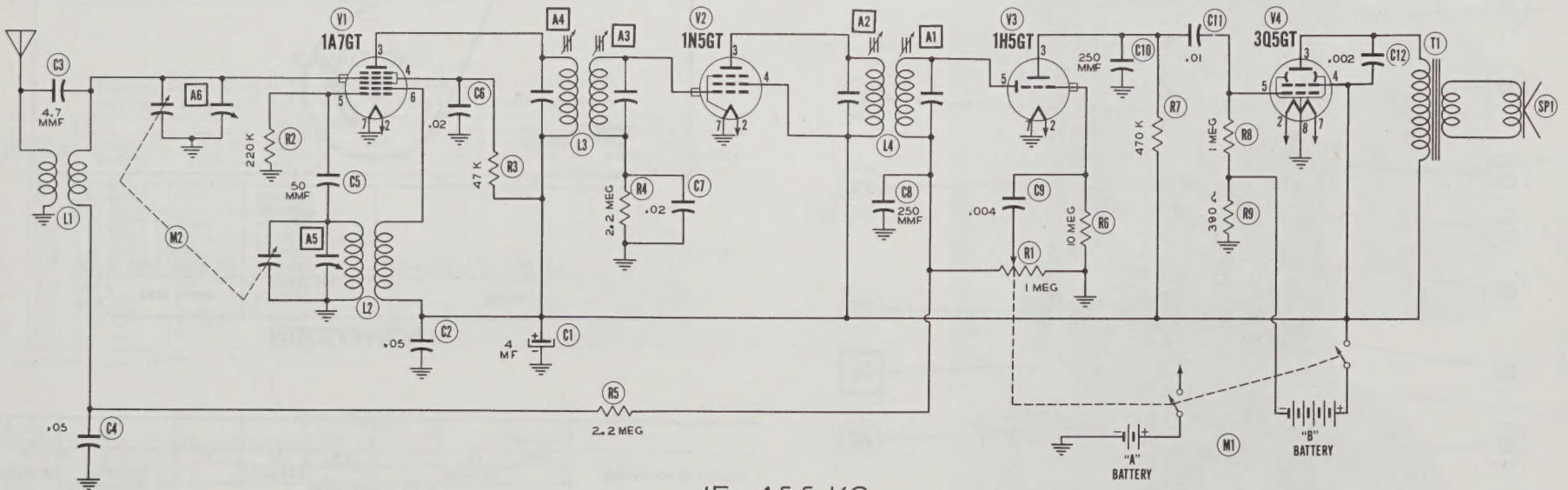


CHASSIS—BOTTOM VIEW



AIRCASTLE MODEL 132564

AIRCASTLE MODEL 132564



IF=455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	TOP CAP
V 1	1A7GT	0V	1.5VDC	90VDC	45VDC	§-2.4V	90VDC	0V	0V	0V
V 2	1N5GT	0V	1.5VDC	90VDC	90VDC	0V	0V	0V	0V	0V
V 3	1H5GT	0V	1.5VDC	63VDC	0V	-.1VDC	0V	0V	0V	0V
V 4	3Q5GT	0V	1.5VDC	86VDC	90VDC	-1.3VDC	-5VDC	1.5VDC	0V	

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	TOP CAP
V 1	1A7GT	0Ω	*	†24Ω	†60KΩ	220KΩ	†0Ω	0Ω	0Ω	3 Meg.
V 2	1N5GT	0Ω	*	†24Ω	†0Ω	3 Meg.	Inf.	0Ω	0Ω	2.2 Meg
V 3	1H5GT	0Ω	*	†470KΩ	Inf.	1 Meg.	10 Meg.	0Ω	0Ω	10 Meg.
V 4	3Q5GT	0Ω	*	†320Ω	†0Ω	1 Meg.	390Ω	*	0Ω	

† Measured From Pin 4 Of V4.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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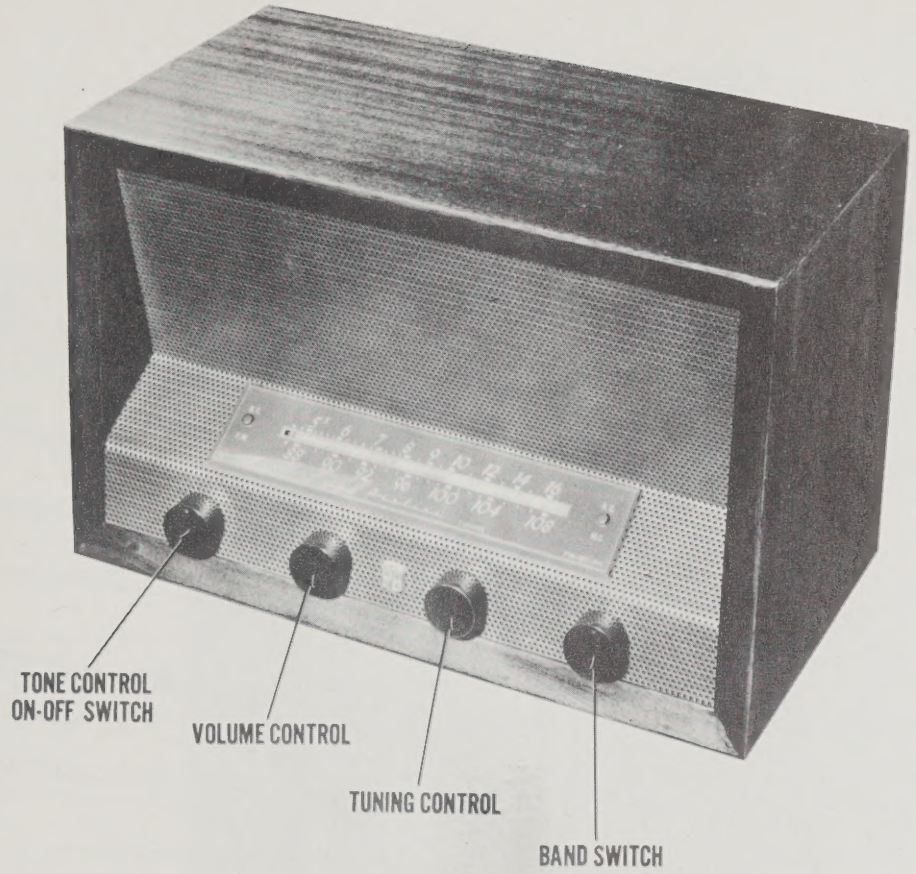
4917-1

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

AIRLINE
MODEL 84HA-1810C



AIRLINE
MODEL 84HA-1810C

AIRLINE MODEL 84HA-1810C

TRADE NAME	Airline, Model 84HA-1810C
SUPPLIER	Montgomery Ward and Co., 619 Chicago Ave., Chicago, Illinois
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES(SEVEN)	Types 12BE6 Converter, 6BJ6 1st IF Amp., 6BJ6 FM 2nd IF-AM DET., 12AL5 FM Det., 12SQ7 AF Amp., 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC — RATING: .26 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC — FREQ. MOD. 88-108MC

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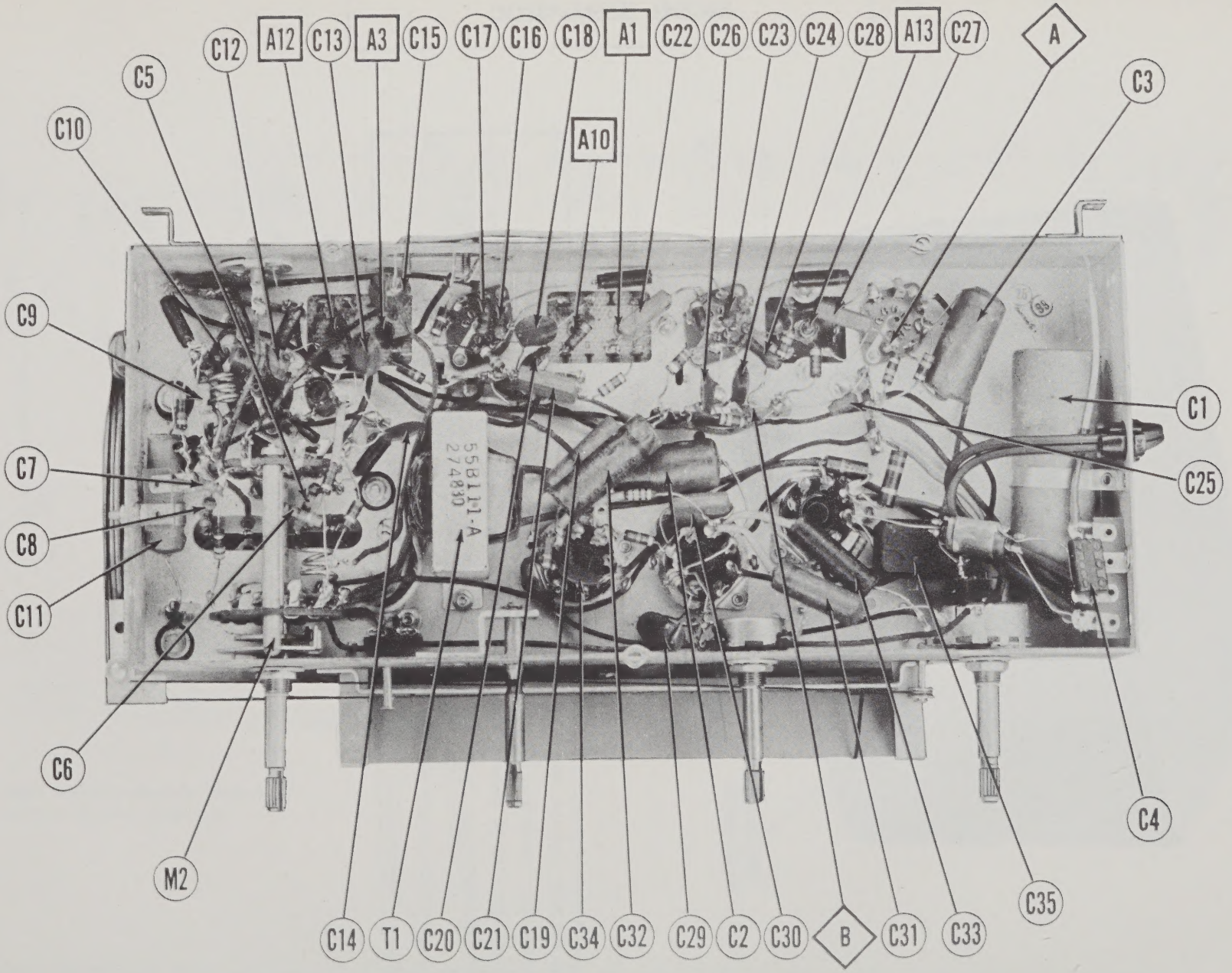
DATE 9/49 4917-2 SET #69 FOLDER #2


C12
A12
C13
A3
C15
C17
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C1
C7
C25
C8
C11
C6
C4
M2
C35
C14
T1
C20
C21
C19
C34
C32
C29
C2
C30
B
C31
C33

L14
R2
R28
R30
R29
R1
R24
R27
R25
R26
L5
R4
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R8
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R7
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L6
R9
L12
R3
L13
L4
R10
R11
R12
R15
R13
R14
L11
R16
R17
R20
R19
L10
R18
R22
R21
55B111-A
274830

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	1st IF Amp.	6BJ6	6BJ6	7CM	
V3	FM 2nd IF Amp-AM Det.	6BJ6	6BJ6	7CM	
V4	Ratio Det.	12AL5	12AL5	6BT	
V5	AF Amp.	12SQ7	12SQ7	8Q	
V6	Power Output	35L6GT	35L6GT	7AC	
V7	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	45B130	PRSA150/40-40	EZ 44315C*		DSB-2x40-150	TA-440	Filter Red
B	40	150		PRS150/20			M-20-150	UT-201	Filter Red
C	20	150							Filter Blue
C2	10	25	45A121	PRS25/10	BR102A		M-10-25	TA-10	Output Cath. Bypass
C3	10	25	45A121	PRS25/10	BR102A		M-10-25	TA-10	Stabilizing Cap
C4	100	500	CM20A101M	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	FM Line Ant. Coupling
C5	100		CC26UK101K	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Coupling
C6	100		CC26UK101K	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Coupling
C7	47		CC21UK470K	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	Osc. Grid Cap
C8	51		CC21UK510J	1469-00005	5R5Q5	N750L-47	MOS.5-45	MS-45	Fixed Padder
C9	5		CC21UK050K	1469-00005	5R5V5	N750K-5	MOS.5-55	MS-55	Fixed Trimmer
C10	1000		47B20A102 N5	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	RF Bypass
C11	.05	600	46AY503J	P688-05	GT6S5		ST-6-05	72P1	Line Isolation
C12	220	500	CM20A221M	1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	Osc. Anode Bypass
C13	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Osc. Anode Decoupling
C14	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Conv. Plate
C15	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AVC Filter
C16	1000		47B20A102 N5	1468-001	1W5D1	GP2L-001	MO.5-21	1FM-21	1st IF Fil. Bypass
C17	1000		47B20A102 N5	1468-001	1W5D1	GP2L-001	MO.5-21	1FM-21	1st IF Fil. Bypass
C18	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st IF Cath. Bypass
C19	.01	600	46AZ103J	P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	RF Bypass
C20	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st IF Decoupling
C21	470	500	CM20A471M	1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Diode RF Filter
C22	470	500	CM20A471M	1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Diode RF Filter
C23	1000		47B20A102 N5	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd IF Fil. Bypass
C24	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Decoupling
C25	1000		47B20A102 N5	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	RF Bypass
C26	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Cath. Bypass
C27	470	500	CM20A471M	1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Diode Load Cap
C28	2000		47B20A202M5	1467-002	1W5D2	GP2M-002	MW.5-22	1FM-22	De-emphasis
C29	.01	600	46AZ103J	P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	Audio Coupling
C30	220	500	CM20A221M	1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	AF Plate Bypass
C31	.004	600	46AZ402J	P688-004	GT6D4		ST-6-004	TM-24	Tone Compensation
C32	.1	200	46AU104J	P288-1	GT2P1		ST-2-1	TM-1	AF Plate Decoupling
C33	.01	600	46AZ103J	P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	Audio Coupling
C34	5000		47A168	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Output Plate Bypass
C35	.01	600	46AR503J	P688-01	GT6S1		ST-6-01	TM-11	Line Filter Note

*Omit Bypass Section.
Note. Some Models Use .05MFD In This Application.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

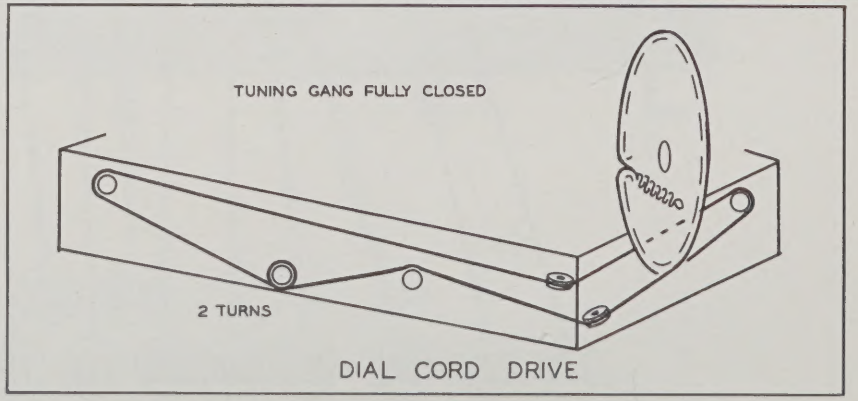
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: AIRLINE PART No.	REPLACEMENT DATA: MEISSNER PART No.	
L1	Loop Ant.	1.3Ω		57C121		
L2	FM Ant.Coil	0Ω	0Ω	51A1061		
L3	FM Osc.Coil	0Ω		51A1062		
L4	AM Osc.Coil	1Ω	7Ω	51B1063	14-1060	
L5	RF Choke	.5Ω		53A153		
L6	RF Choke	.5Ω		53A153		
L7A	1st AM IF	12Ω	12Ω	50B399		
B	1st FM IF	.8Ω	.5Ω			
L8A	2nd AM IF	8.5Ω	9Ω	50B400		
B	2nd FM IF	1Ω	.5Ω			
L9	Ratio Det.	1.5Ω	0Ω	50B401		
L10	Filament Choke	.5Ω		53A153		
L11	Filament Choke	.5Ω		53A153		
L12	Filament Choke	.5Ω		53A153		
L13	Filament Choke	.5Ω		53A153		
L14	Line Choke	.1Ω		53A137		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: AIRLINE PART No.		NOTES
M1	Bayonet	6-8	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M2	Switch	60B328	Band
M3	2 Gang Var. Cap.	48C203	(30-477MMF, 36-202MMF)
	Dial Scale	22B210	
	Dial Pointer	82A151	
	Knob	15B067-5	Volume/Tuning
	Knob	15B142-5	Tone/Band Switch



PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	2 Meg.	½	25B604	Q13-130	AM-66-Z	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A per instructions
R2A	[illegible]	½	25B758	Q13-133	AM-60-Z	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R2A per instructions
S	Switch		Not Req.	76-1	SW-A	Attach to R2A per instructions

RESISTORS

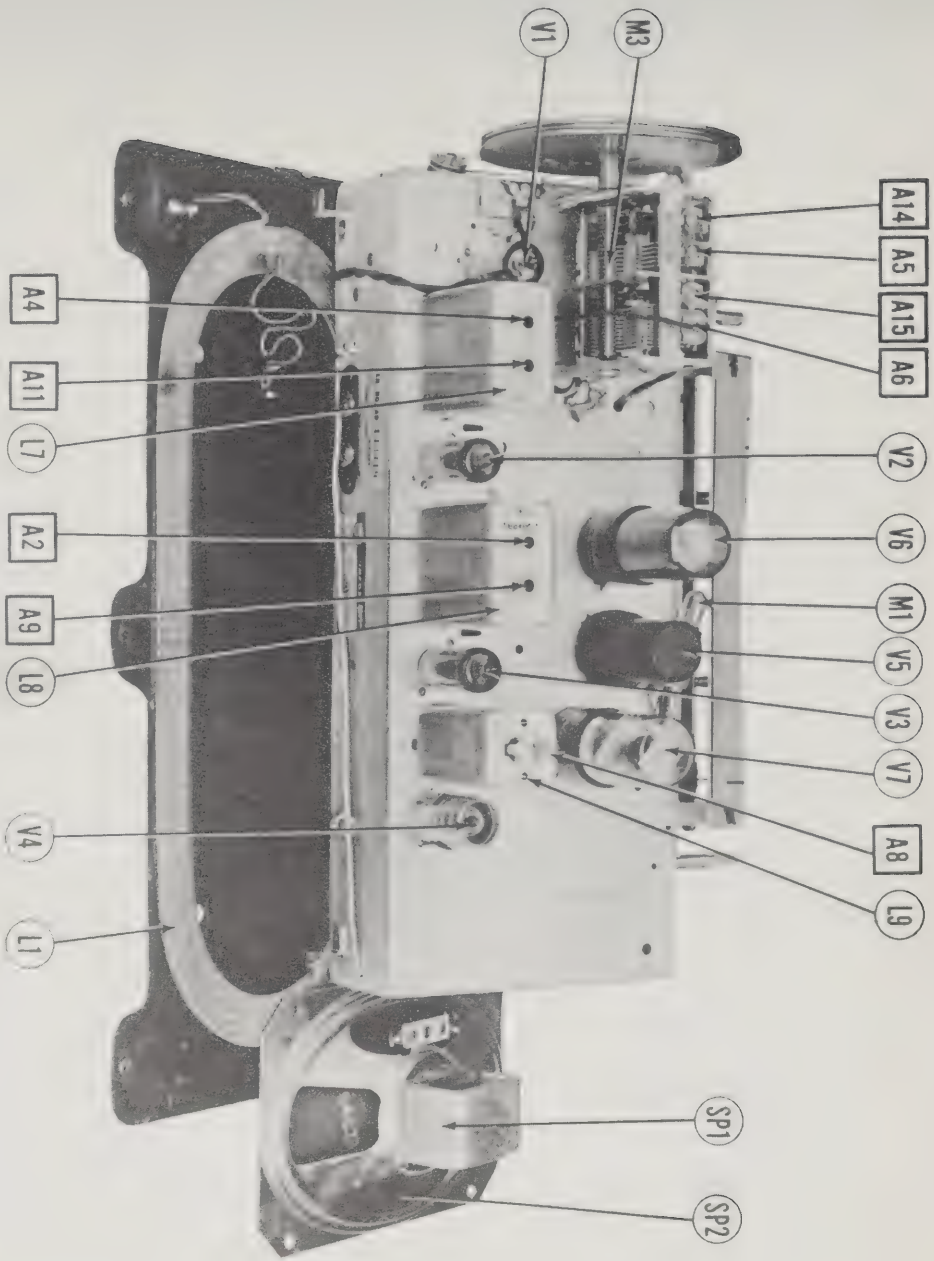
ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	AIRLINE PART No.	IRC PART No.	
R3	10Ω	½	RC20AE100K		Parasitic Supp.
R4	1000Ω	½	RC20AE102M	BTS-1000	Conv. Plate Decoupling
R5	10Ω	½	RC20AE100K		Parasitic Supp.
R6	10Ω	½	RC20AE100K		Parasitic Supp.
R7	22KΩ	½	RC20AE223K	BTS-22K	Osc. Grid
R8	330Ω	½	RC20AE331M	BTA-33	Osc. Plate Decoupling
R9	2.2 Meg.	½	RC20AE225M	BTS-2.2 Meg.	AVC Network
R10	1 Meg.	½	RC20AE105M	BTS-1 Meg.	AVC Network
R11	27Ω	½	RC20AE270K	BW-½-27	1st IF Cathode
R12	68Ω	½	RC20AE680K	BW-½-68	1st IF Cathode
R13	330Ω	½	RC20AE331M	BTA-330	1st IF Decoupling
R14	47KΩ	½	RC20AE473M	BTS-47K	Diode Filter
R15	330KΩ	½	RC20AE334M	BTS-330K	Diode Load
R16	12Ω	½	RC20AE120K	BW-½-12	2nd FM IF Cathode
R17	68Ω	½	RC20AE680K	BW-½-68	2nd FM IF Cathode
R18	330Ω	½	RC20AE331M	BTA-330	2nd FM IF Decoupling
R19	47KΩ	½	RC20AE473M	BTS-47K	De-emphasis
R20	47KΩ	½	RC20AE473M	BTS-47K	AVC Network
R21	6800Ω	½	RC20AE682K	BTS-6800	Ratio Det. Diode Load
R22	6800Ω	½	RC20AE682K	BTS-6800	Ratio Det. Diode Load
R23	47KΩ	½	RC20AE473M	BTS-47K	Series Phono Input
R24	5.6 Meg.	½	RC20AE565M	BTS-5.6 Meg.	AF Grid
R25	470KΩ	½	RC20AE474M	BTS-470K	AF Plate
R26	330KΩ	½	RC20AE334M	BTS-330K	AF Plate
R27	150Ω	½	RC20AE151K	BW-½-150	Output Cathode
R28	560Ω	1	RC30AE561K	BW-1-560	Filter
R29	220Ω	1	RC30AE221M	BW-1-220-5%	Filter 5%
R30	330Ω	½	RC20AE331M	BW-½-330	Dial Lamp Shunt

TRANSFORMER (OUTPUT)

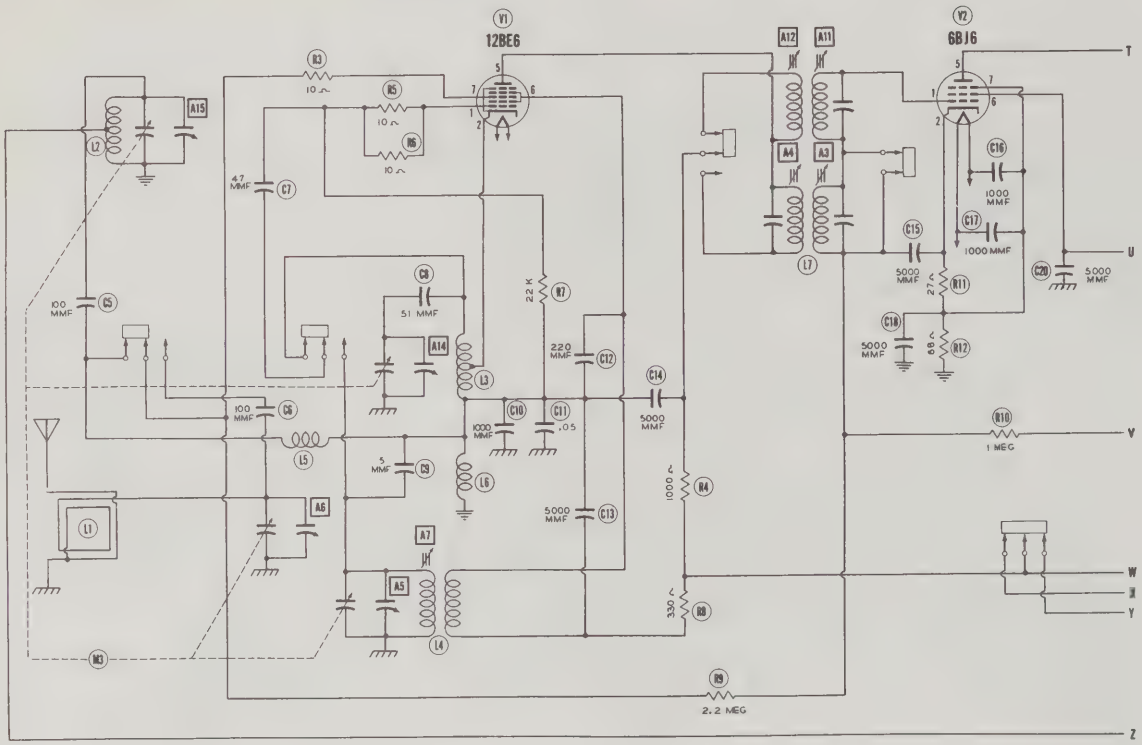
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		AIRLINE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	8400Ω	4.7Ω	330Ω	.7Ω	84A-[illegible]	A-4[illegible]†	RS-6†	A-2628†	† Drill One New Mtg. Hole

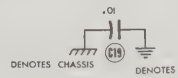
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			AIRLINE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	FIELD	V.C. IMP.	56B111		40A07	
	12"	8.7Ω				
SP2	CONE Dia.	V.C. DIA.				
	6-7/8" x 6-7/8"	1 1/16"				



DATE 9/49 4917-2 SET #69 FOLDER #2





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1A	12BE6	§-9VDC	0V	36VAC	50VAC	95VDC	95VDC	0V	
‡ V1B	12BE6	§-.2VDC	0V	36VAC	50VAC	95VDC	95VDC	0V	
V2	6BJ6	-.1VDC	.8VDC	36VAC	31VAC	95VDC	95VDC	.6VDC	
V3A	6BJ6	-.6VDC	0V	31VAC	24VAC	0V	0V	0V	
‡ V3B	6BJ6	-.1VDC	.7VDC	31VAC	24VAC	85VDC	85VDC	.6VDC	
‡V4	12AL5	-8.2VDC	.4VDC	24VAC	12VAC	11VDC	0V	-9.2VDC	
V5	12BQ7	0V	-.6VDC	0V	0V	0V	45VDC	0V	12VAC
V6	35L6GT	0V	85VAC	100VDC	90VDC	0V	67VDC	50VAC	5.2VDC
V7	35Z5GT	107VDC	117VAC	113VAC	0V	113VAC	0V	85VAC	120VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1A	12BE6	22KΩ	.5Ω	39Ω	52Ω	†2KΩ	†1.2KΩ	3.5 Meg.	
‡ V1B	12BE6	22KΩ	.5Ω	39Ω	52Ω	†2KΩ	†1.2KΩ	.5Ω	
V2	6BJ6	1.5 Meg.	95Ω	39Ω	33Ω	†1.2KΩ	†1.2KΩ	68Ω	
V3A	6BJ6	370KΩ	80Ω	32Ω	25Ω	Inf.	Inf.	68Ω	
‡ V3B	6BJ6	370KΩ	80Ω	32Ω	25Ω	†1.2KΩ	†1.2KΩ	68Ω	
‡V4	12AL5	2 Meg.	2 Meg.	24Ω	12Ω	6.8KΩ	Inf.	6.8KΩ	
V5	12BQ7	Inf.	5.5 Meg.	0Ω	0Ω	0Ω	†800KΩ	0Ω	12Ω
V6	35L6GT	Inf.	87Ω	†550Ω	†800Ω	500KΩ	Inf.	53Ω	
V7	35Z5GT	Inf.	118Ω	112Ω	Inf.	112Ω	Inf.	87Ω	110KΩ

† Measured From Pin 8 Of V7.
‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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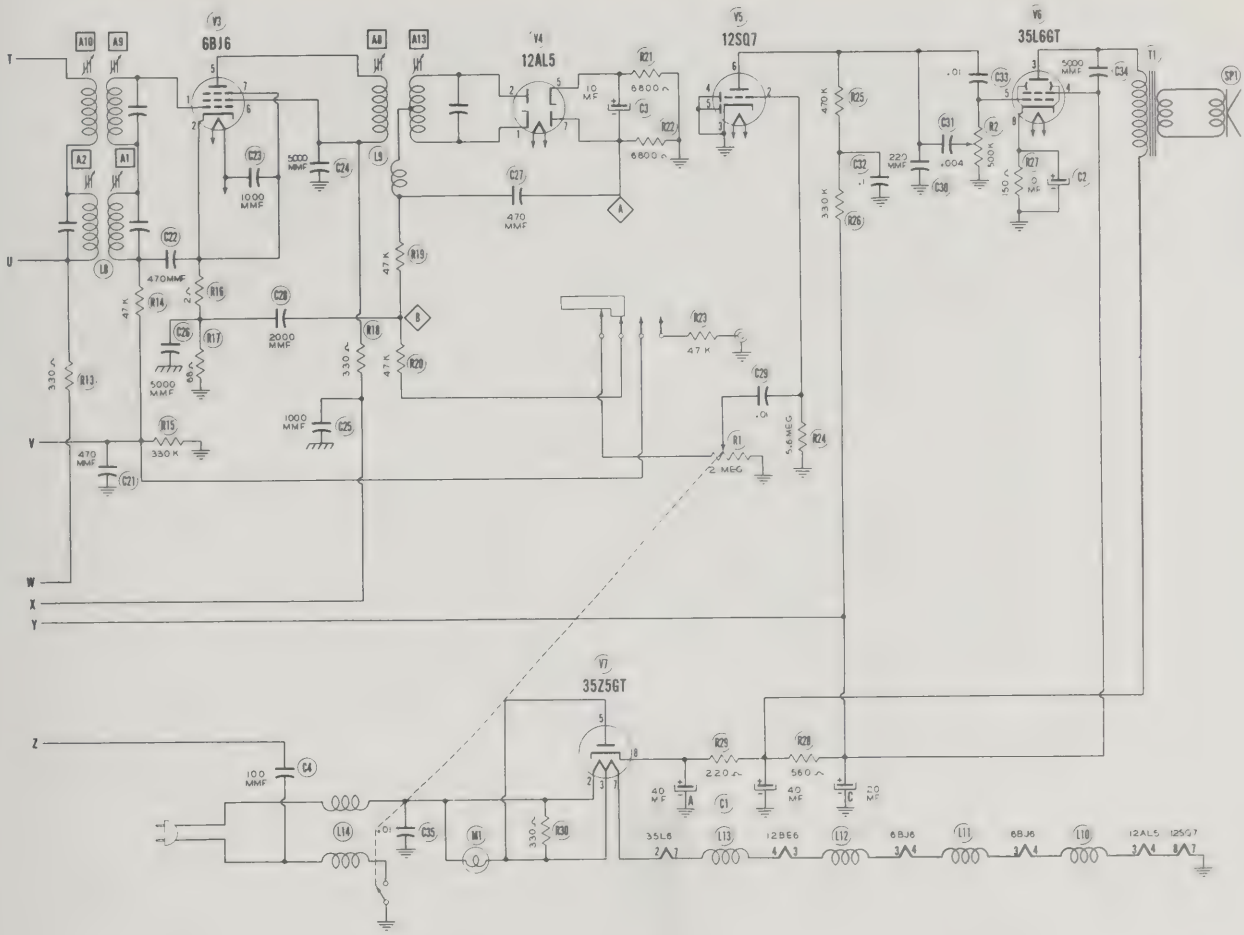

IF=455 KC AM

IF=10.7 MC FM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

The calibration marks on the dial backplate are as follows reading left to right: Pointer setting, 88MC, 600KC, 1500KC, 108MC.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

The standard RMA dummy specified consists of a 200MMF capacitor in series with a 20uh. RF choke which is shunted by 400MMF condenser in series with a 400Ω carbon resistor.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to AM Mixer stator on tuning gang. Low side to B-.	455KC	AM	Point of non interference	Across voice coil	A1,A2, A3, A4	Adjust for max. output. If isolation transformer is not used reduce dummy antenna to .001MFD to reduce hum modulation.
2.	RMA Dummy	High side thru dummy to BC ext. antenna terminal. Low side to chassis.	1500KC	"	1500KC	"	A5,A6	Adjust for max. output.
3.	RMA Dummy	"	600KC	"	600KC	"	A7	" " " "

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to FM Mixer stator on tuning gang. Low side to chassis.	10.7MC (Unmod.)	FM	Point of non interference	DC Probe thru 500KΩ res. to Point (A) Common to B-.	A8,A9, A10, A11, A12	Adjust for max. deflection.
5.	.01MFD	"	"	"	"	DC Probe thru 500KΩ to Point (B). Common to B-.	A13	Adjust for zero reading. A positive and negative reading is obtained on either side of the correct setting. Continue with step 7.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 1 (Grid) of 6BJ6 (V2). Low side to B-.	10.7MC (450KC Sweep)	FM	Point of non interference	Vert.Amp. to Point (C) Low side to B-.	A9,A10	Adjust for max. amplitude and symmetry as per Fig 1.
5.	.01MFD	High side to FM Mixer stator of tuning gang. Low side to B-.	"	"	"	"	A11, A12	"
6.	.01MFD	"	"	"	"	Vert.Amp. to Point (B) Low side to chassis.	A3,A13	Adjust A13 so crossover point occurs at center of pattern as per Fig 2. Retouch A8 for max. amp. and straightness of cross over lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	300Ω carbon res.	High side thru 300Ω to ungrounded FM antenna terminal. Low side to chassis.	108MC (Unmod.)	FM	108MC	DC Probe thru 500KΩ to Point (A) Common to B-.	A14, A15	Adjust for max. deflection.

FIG. 1

FIG. 2

ARVIN
MODELS 350P, 351P

ARVIN
MODELS 350P, 351P

ARVIN MODEL 350P

TRADE NAME	Arvin, Models 350P, 351P (RE-267)
MANUFACTURER	Noblitt-Sparks Inc., Columbus, Indiana.
TYPE SET	Three Power Operated Portable Superheterodyne Receiver with Loop Antenna.
TUBES (FIVE)	Types 1U4 RF Amp., 1R5 Converter, 1U4 IF Amp., 1U5 DET-AVC-AF, 3V4 Power Output.
POWER SUPPLY	110-120 Volts AC-DC or 9 Volts "A" Supply and 90 Volts "B" Supply.
RATING	.16 Amp. @ 117 Volts AC or 75MA @ 9 Volts DC and 14MA @ 90 Volts DC
TUNING RANGE—BROADCAST	540-1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not connect a .1 MFD cap. in series with low side of signal generator and B-.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.05MF	High side to high side of loop. Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2.	.05MF	"	455KC (400~ Mod.)	"	"	A5	Adjust for minimum output.
3.		Loop	1620KC	"	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	1400KC	Tune for max. output.	"	A7	Rock tuning gang and adjust for maximum output.

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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PARTS LIST AND DESCRIPTIONS

ARVIN
MODEL 350P

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: ARVIN PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	1U4	1U4	6AR	
V2	Converter	1R5	1R5	7AT	
V3	IF Amp.	1U4	1U4	6AR	
V4	DET-AVC-AF	1U5	1U5	6BW	
V5	Power Output	3V4	3V4	6BX	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: ARVIN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	A21815	AF84D20A	UP		DY-304	EL-351	■ Filter
B	20	150			4CJ65				▲ Filter
C	100	10							Filament Bypass
C2	.05	400	C20068-503	P488-05	GT4S5		ST-4-05	TM-15	AVC Filter
C3	.05	200	C20272-503	P288-05	GT2S5		ST-4-05	TM-15	Filament Bypass
C4	50	500	C20065-500	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	Osc. Grid Cap
C5	.05	200	C20272-503	P288-05	GT2S5		ST-4-05	TM-15	Osc. Anode Bypass
C6	10000		A22295	1467-01	1D3S1	821-01	MW.3-11	36C1	IF Grid Filter
C7	.05	200	C20272-503	P288-05	GT2S5		ST-4-05	68P16	Filament Bypass
C8	33	500	C20065-330	1468-00004	5W5Q4	GP1K-33	MO.5-44	1FM-44	Diode RF Filter
C9	50	500	C20272-503	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	Diode RF Filter
C10	.01	200	C20272-103	P488-01	GT2S1	GP2-335-01	ST-4-01	68P14	Audio Coupling
C11	.05	200	C20272-503	P288-05	GT2S5		ST-4-05	68P16	Filament Bypass
C12A	50		Note 1	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	AF Plate Bypass
B	5000		Note 1	P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	AF Screen Bypass
C	2000		Note 1	P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	Audio Coupling
C13	.006	400	C20273-602	P488-006	GT6D6	GP2M-0056	ST-6-006	TM-26	Output Plate Bypass
C14	.1	400	C20273-104				TST-2-1	68P21	Line Isolation
C15	.05	200	C20272-503	P288-05	GT2S5		ST-4-05	TM-15	Line Filter
C16	.5	200	A22338					68P25	RF Bypass Note 2

Note 1. Items C12A, C12B, C12C, R10A, R10B, And R10C Are Combined Into One Unit Obtainable Under Mfgr's Part No. A22257.
Note 2. Not Used In All Models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	2 Meg.	½	C22253	Q13-139	15/16-66 -Z	Volume control
B	Switch		Not Req.	76-2#	Switch DPST*	

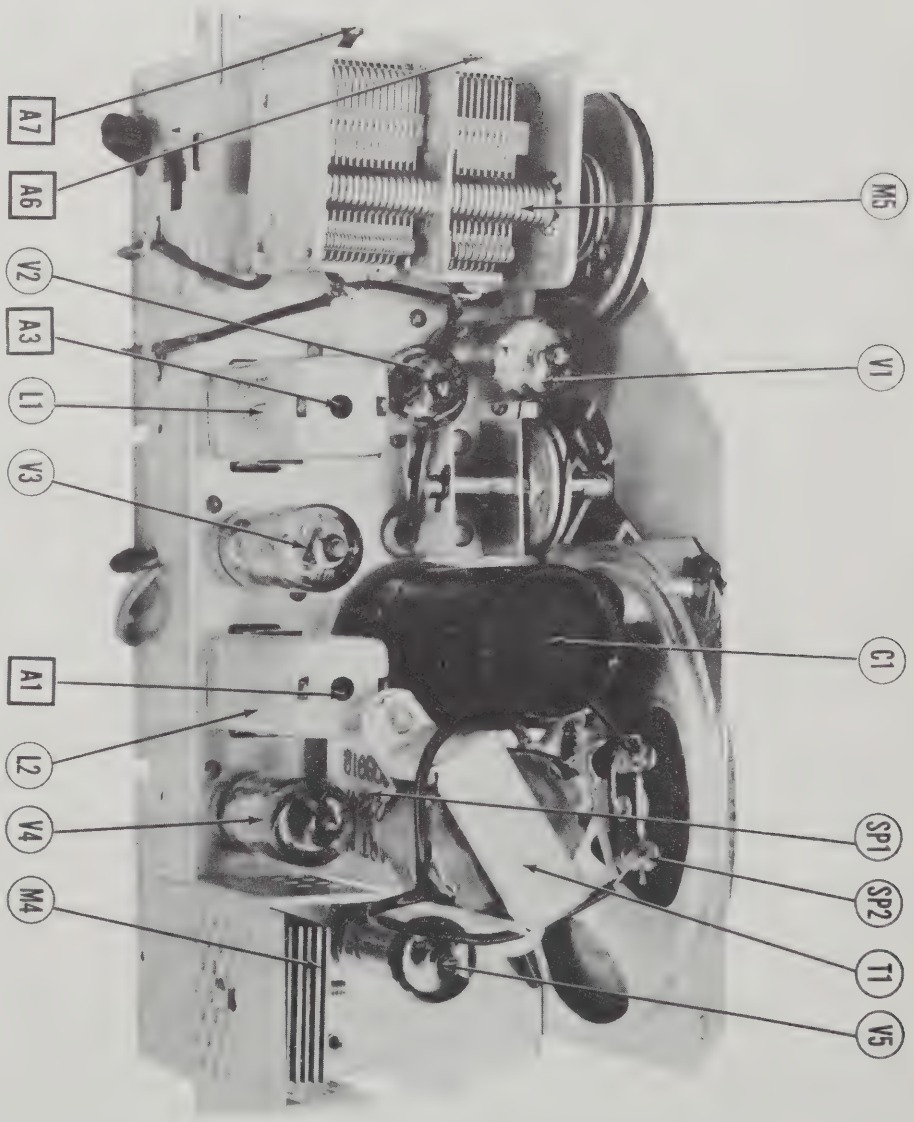
Attach To R1A Per Instructions.
* Attached At Factory.

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARVIN PART No.	IRC PART No.	IDENTIFICATION CODES
R2	15KΩ	½	C20271-153	BTS-15K	Conv. Grid
R3	100KΩ	½	C20271-104	BTS-100K	Osc. Grid
R4	22KΩ	½	C20271-223	BTS-22K	Osc. Plate
R5	680Ω	½	C20271-681	BTS-680	Filament String
R6	10 Meg.	½	C20271-106	BTS-10 Meg.	IF Grid
R7	47KΩ	½	C20271-473	BTS-47K	Diode Filter
R8	3.3 Meg.	½	C20271-335	BTS-3.3 Meg.	AVC Network
R9	4.7 Meg.	½	C20271-475	BTS-4.7 Meg.	AF Grid
R10A	4.7 Meg.	½	Note 1	BTS-4.7 Meg.	AF Screen
B	1 Meg.	½	Note 1	BTS-1 Meg.	AF Plate
C	2.2 Meg.	½	Note 1	BTS-2.2 Meg.	Output Grid
R11	1000Ω	½	C20271-102	BTS-1000	Filament String
R12	82Ω	2	C22336-820		Surge Limiter Wire Wound
R13	1850Ω	10	A21816		Filter Wire Wound
R14	1800Ω	1	C20070-182	BW-1-1800	Filter
R15	3300Ω	½	C20060-332	BTS-3300	Filament Shunt
R16	100KΩ	½	C20271-104	BTS-100K	AVC Network Note 2

Note 1. Items C12A, C12B, C12C, R10A, R10B And R10C Are Combined Into One Unit Obtainable Under Mfgr's Part No. A22257.
Note 2. Not Used In All Models.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		ARVIN PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	9.5KΩ	3.5Ω	290Ω	.3Ω	AC22254-1	A-3329	RO-11	A-2998	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			ARVIN PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V.C. IMP.		ST-113†		
SP1	PM	3.5Ω	C22241	MOD.P4-X	4A07†	†Remount Output Transformer
	CONE DIA.	V.C. DIA.				
SP2	3-7/8"	9/16"				

R F COILS

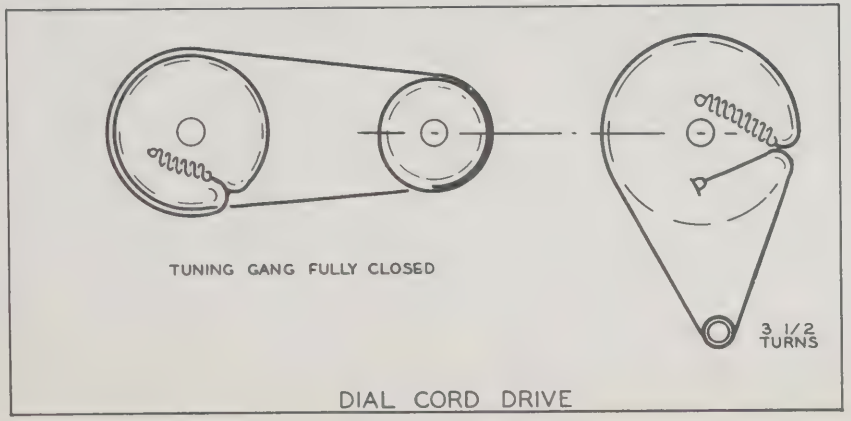
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	ARVIN PART No.	MEISSNER PART No.	
L1A	Loop Ant.	1Ω		AD22258-1		Includes Cabinet Back For Model 350P
B	Loop Ant.	1Ω		AD22258-2		Includes Cabinet Back For Model 351P
L2	RF Coil	32Ω	32Ω	AC22256-1		
L3	Osc.Coil	1.5Ω	7Ω	AC22255-1	14-1060	
L4	Input IF	25.3Ω	24.2Ω	C21797-2	16-6668	
L5	Output IF	12Ω	12Ω	C21797-5	16-6668	

BATTERIES

ITEM No.	VOLTAGE	ARVIN PART No.	REPLACEMENT DATA						INSTALLATION NOTES
			EVEREADY			BURGESS			
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	
M1	9 V"A"		935			1			6 Used In Series
M2	90V"B"			490			N60		

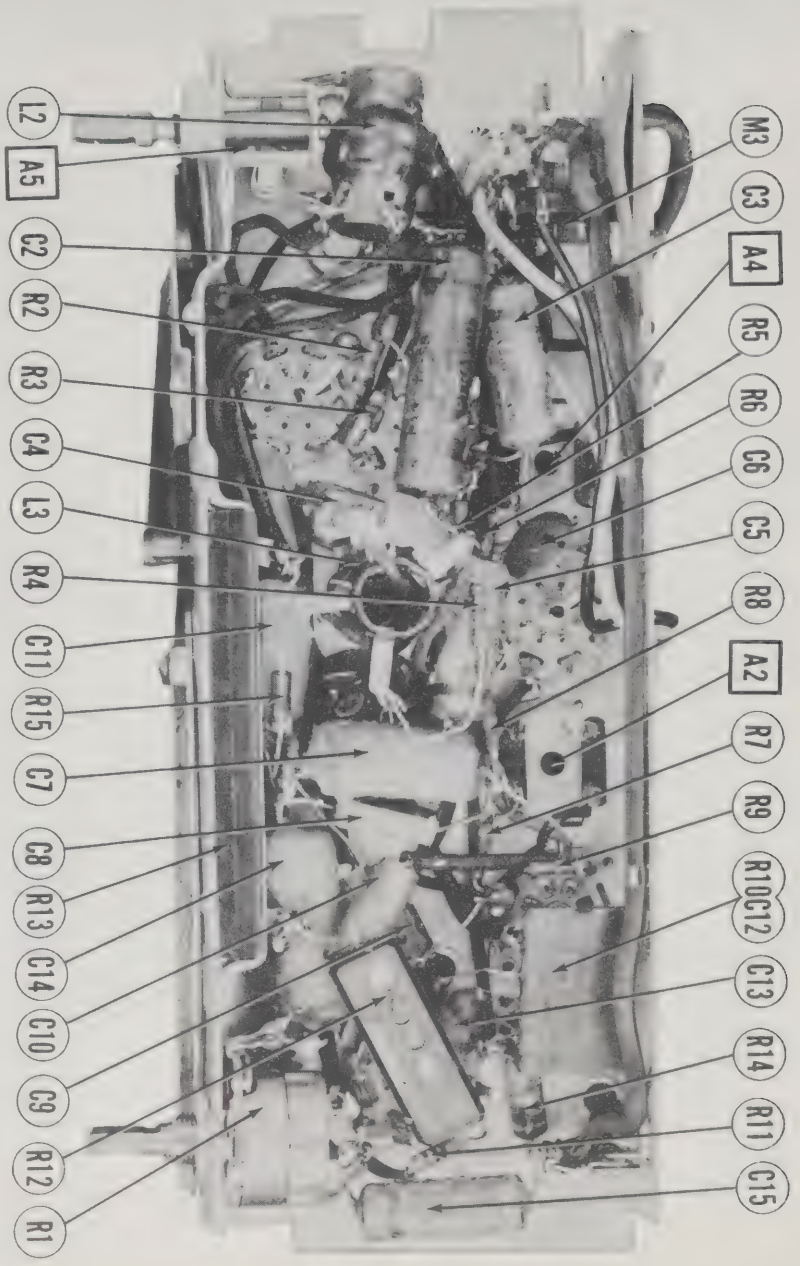
MISCELLANEOUS

ITEM No.	PART NAME	ARVIN PART No.	NOTES
M3	Switch	A21051	AC-DC/Battery
M4	Rectifier	C20207-2	Selenium (75MA)
M5	2 Gang Var. Cap.	AC22277-1	(29-495MMF, 24-190MMF)
A5	Trimmer	A20275	Trap Adj.
	Dial Pointer	C22267	
	Knob	A22286-1	
	Cabinet	AA22380-1	Blue-Green
	Cabinet	AA22380-2	Jade-Green

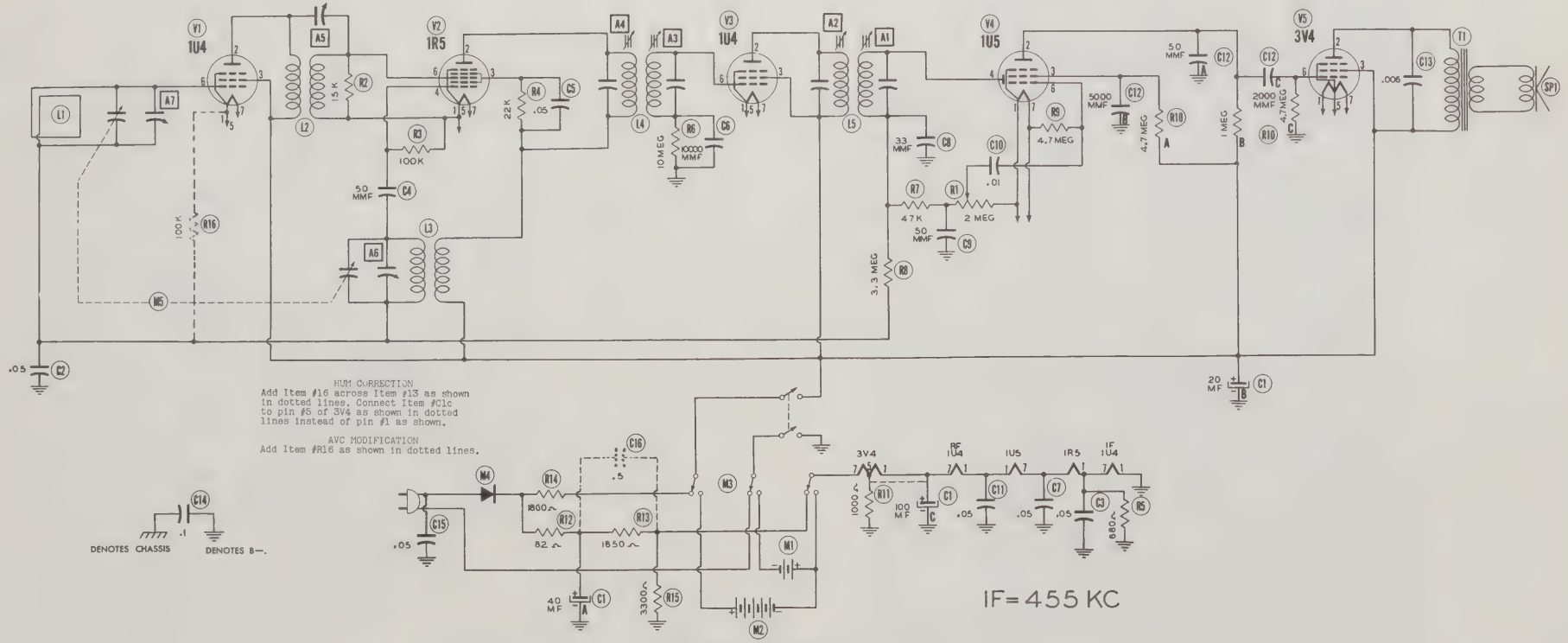


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



ARVIN MODEL 350P



HUM CORRECTION
Add Item #16 across Item #13 as shown in dotted lines. Connect Item #C1c to pin #5 of 3V4 as shown in dotted lines instead of pin #1 as shown.

AVC MODIFICATION
Add Item #R16 as shown in dotted lines.

DENOTES CHASSIS — DENOTES B—.

VOLTAGE AND RESISTANCE READINGS TAKEN IN AC-DC POSITION.

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	4.6VDC	100VDC	100VDC	0V	4.6VDC	.1VDC	6.2VDC
V 2	1R5	1.7VDC	100VDC	50VDC	$-7.1 VDC	1.7VDC	1.7VDC	3.2VDC
V 3	1U4	0V	100VDC	100VDC	.1VDC	0V	0V	1.7VDC
V 4	1U5	4.6VDC	20VDC	15VDC	.5VDC	.5VDC	.2VDC	3.2VDC
V 5	3V4	6.2VDC	100VDC	100VDC	100VDC	7.6VDC	0V	9.5VDC

$TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	1U4	*	†1.8KΩ	†1.8KΩ	Inf.	*	5.5 Meg.	*
V 2	1R5	*	†1.8KΩ	†22KΩ	100KΩ	*	40Ω	*
V 3	1U4	*	†1.8KΩ	†1.8KΩ	5.5 Meg	*	10 Meg.	*
V 4	1U5	*	†1 Meg.	†4.7 Meg.	2 Meg.	2 Meg.	4.7 Meg.	*
V 5	3V4	*	†1.8KΩ	†1.8KΩ	3KΩ	*	2.2 Meg.	*

*DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† Measured From Output Of M4.
Note: Power Sw. Must Be Turned On To Make Resistance Measurements.

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4917-3

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

BENDIX MODELS
235BI, 235M1
(CH. CODE MA, MB, MC, MD)

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MODEL 235M1

BENDIX MODELS
235BI, 235M1
(CH. CODE MA, MB, MC, MD)

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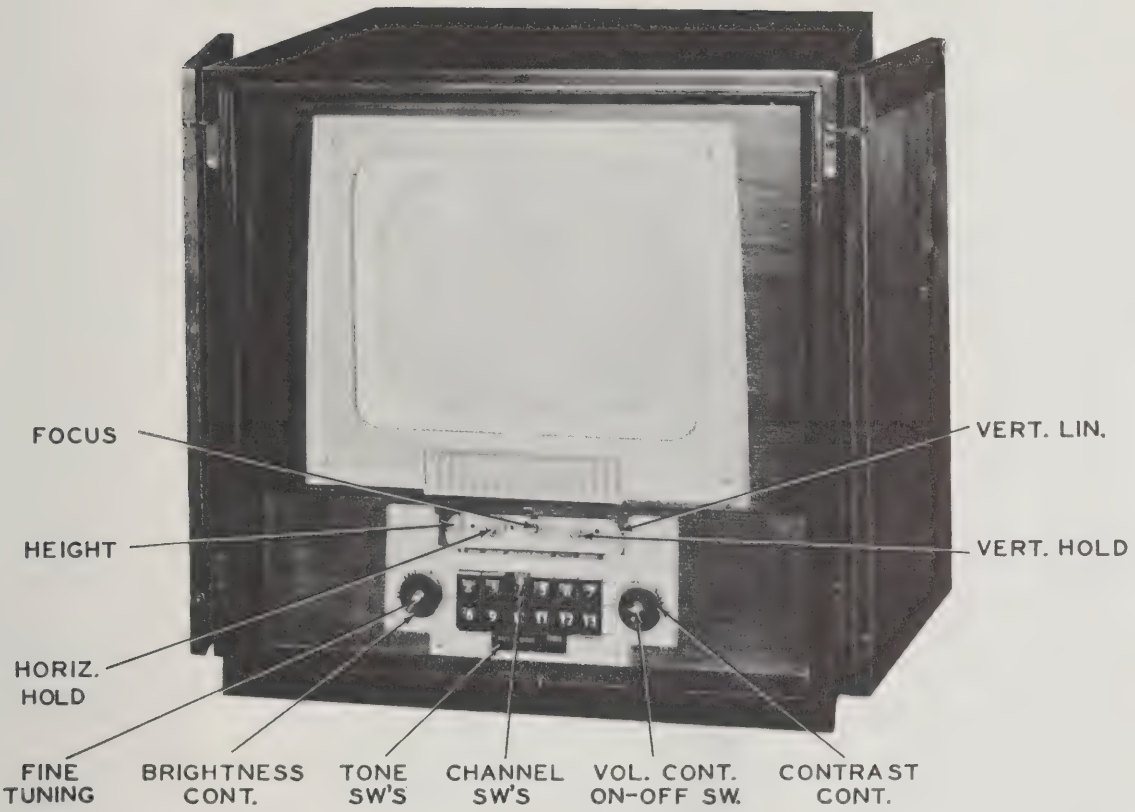

BENDIX MODELS
235B1, 235M1 (Ch. CODE MA, MB, MC)

BENDIX MODEL 235M1

TRADE NAME	Bendix, Models 235B1,235M1 (Chassis Codes MA, MB, MC, MD)
MANUFACTURER	Bendix Radio, Div., of Bendix Aviation Corp., Baltimore, Maryland
TYPE SET	Televison Receiver
TUBES	Twenty Two (Chassis Codes MA and MB) Twenty Three (Chassis Codes MC and MD)
POWER SUPPLY	110-120 Volts AC
TUNING RANGE—Channels 2 through 13	RATING: 1.7 Amp @ 117 Volts AC

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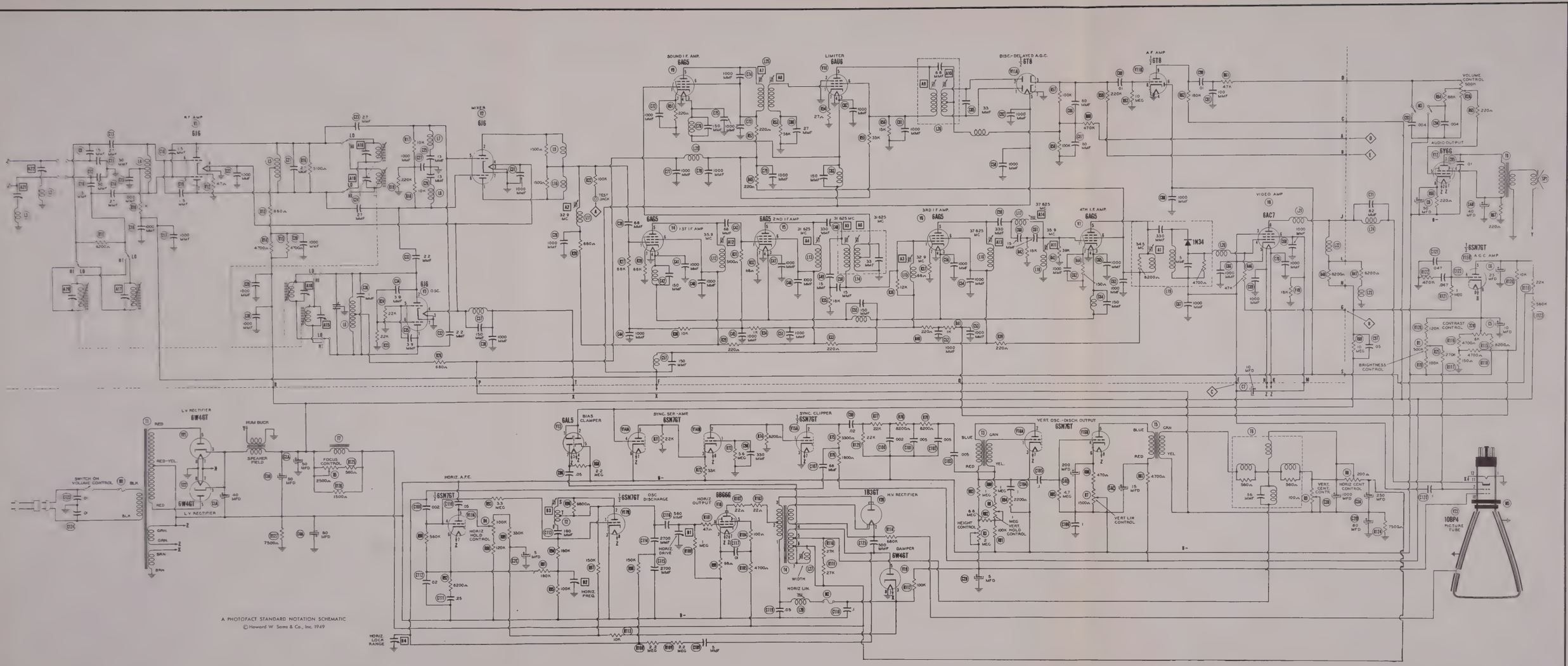
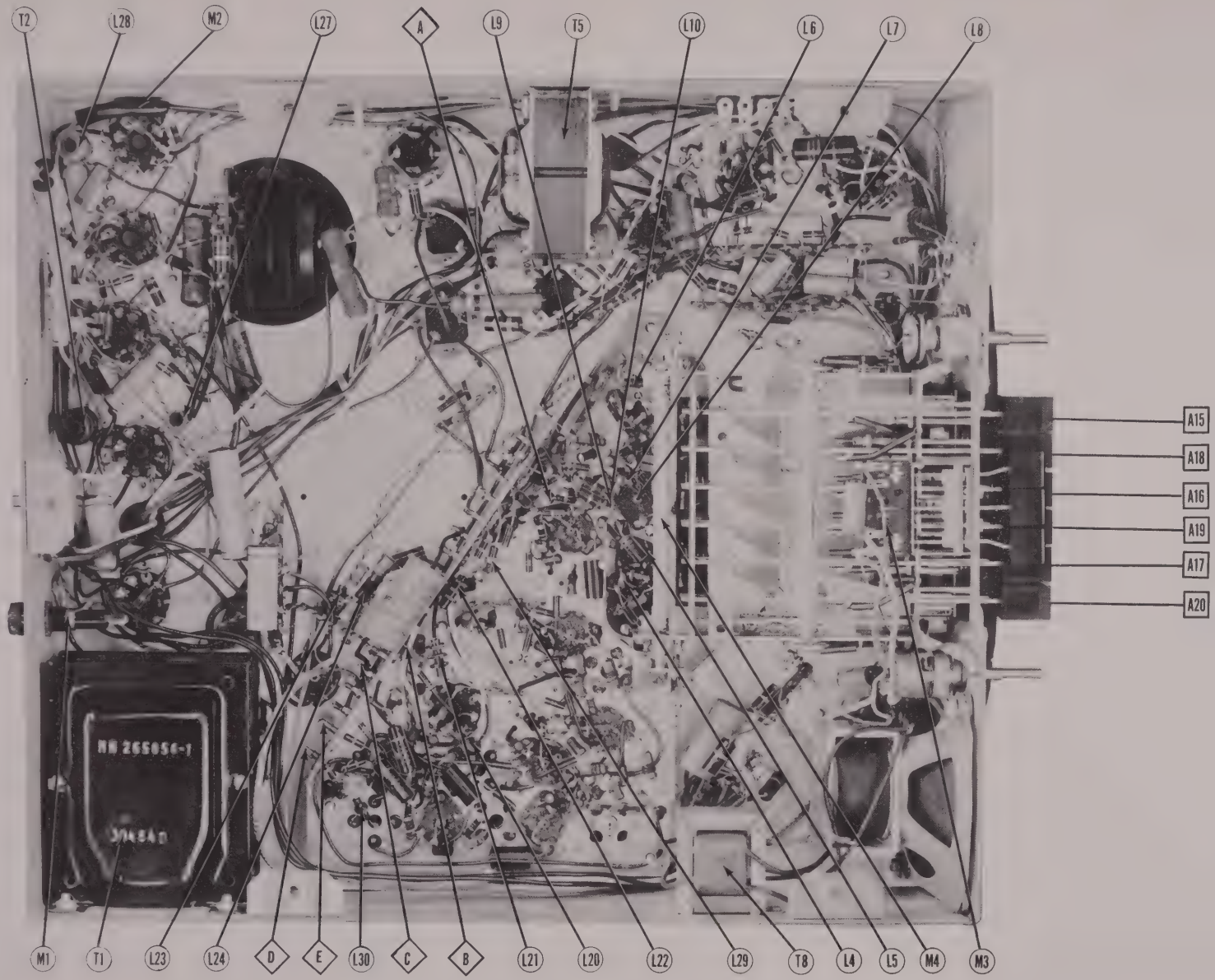
DATE 9/49 4917-4 SET #69 FOLDER #4

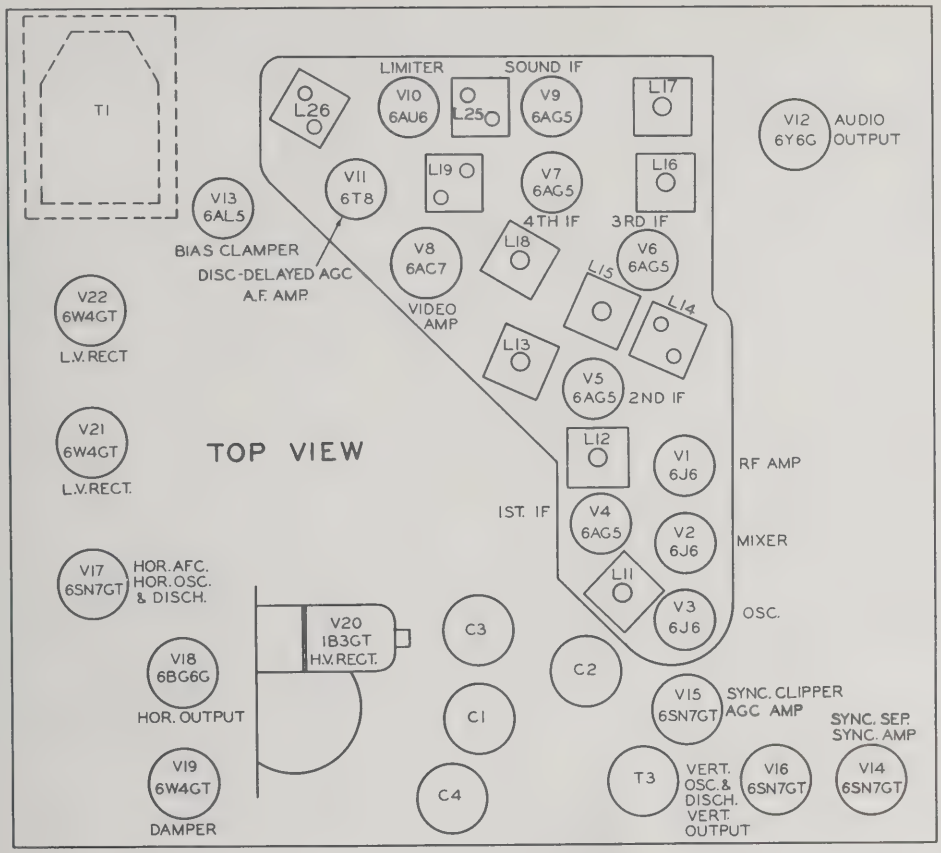


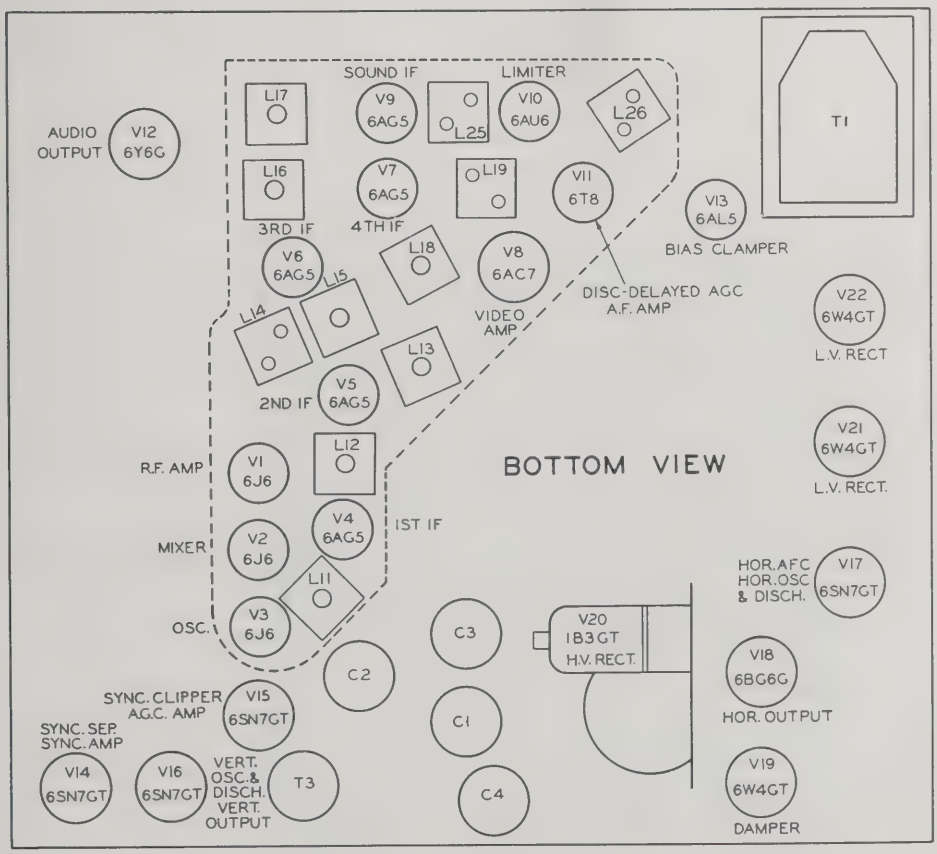
BENDIX MODELS
235B1, 235M1 (Ch. CODE MA, MB, MC)

CHASSIS-TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Damage to this receiver may result if any of the following list of tubes are removed with receiver turned on:

V3	6J6	RF Oscillator
V15	6SN7GT	AGC Amp. and Sync. Clipper
V16	6SN7GT	Vert. Osc. and Vert. Output
V17	6SN7GT	Horiz. Osc., AFC and Discharge
V18	6BG6G	Horiz. Output
V21	6W4GT	Low Volt Rectifier
V22	6W4GT	Low Volt Rectifier
V23	10BP4	Picture Tube

Extreme care should be taken not to make contact with the high voltage anode lead of the picture tube.

IF ALIGNMENT

Set the contrast control to measure -3.5 to -4 volts at terminal "Q" on the IF channel sub-chassis to chassis. Disable the AGC system by connecting a jumper from pin 4 (Grid) of 6SN7GT (V15B) to the junction of the contrast control R2B and the 8200Ω resistor R115.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.05MFD	High side to Point A. Low side to chassis. (Adjust output to give 1 1/2 to 2 1/2 volt reading on VTVM)	34.5MC	Any	DC Probe to Point (E) (terminal "G" on IF sub-chassis) Common lead to Point (C) (terminal "E" on IF sub-chassis).	A1	Adjust for maximum deflection.
2.	.05MFD	"	32.9MC	"	"	A2,A3	"
3.	.05MFD	"	31.625MC	"	"	A4	"
4.	.05MFD	"	31.625MC	"	"	A5	Adjust for minimum deflection.
5.	.05MFD	High side to Point A. Low side to chassis.	31.625MC	"	DC Probe to Point (D) (terminal "A" on IF sub-chassis) Common to chassis.	A4,A5, A6,A7 A8,A9	Increase signal generator output to give a 4 volt reading on VTVM. Adjust A4 thru A9 for maximum deflection. Repeat step 5 several times to assure accurate alignment.
6.	.05MFD	"	Turn sig. gen. off.	"	DC Probe to Point (E) (Terminal "B" on IF sub-chassis) Common to chassis.		Note reading on VTVM, being sure no extraneous noise of other interference is being introduced into receiver (short, antenna terminals). The reading obtained is the zero reference point for when the disc. transformer secondary is balanced.
7.	.05MFD	"	31.625MC	"	"	A10	Adjust for zero balance reference point obtained in preceding step. A positive and negative reading will be obtained on either side of the correct setting.
8.	.05MFD	"	35.9MC	"	DC Probe to Point (B) Common to Point (C)	A11,A12	Adjust for maximum deflection.
9.	.05MFD	"	37.625MC	"	"	A13,A14	Adjust A13 for maximum deflection. If a satisfactory reading cannot be obtained, very slightly detune A14 and adjust A13 for maximum. Then adjust A14 for minimum deflection.
10.	Direct	Across antenna terminals.	32.9MC	"	"	A2,A3	Recheck for maximum deflection.
11.	Direct	"	35.9MC	"	"	A11,A12	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal amplifier of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Tube Shield	High side to ungrounded tube shield floating over mixer tube (V2).	35MC (10MC Sweep)	31.625MC 36.125MC 37.625MC	Any	Vert. Amp. to point (B) Low side to chassis.		Check to see that the response curve obtained is similar to Fig 1 with markers appearing at the proper points. If necessary, slightly retouch A1,2, 3,4,5,6,11, 12,13,14.

RF ALIGNMENT

Alignment points A15 thru A20 are located behind the plate on the front panel of the chassis above the push-buttons.

Leave contrast control set for -3.5 to -4 volts.

The dummy antenna used consists of a 120Ω carbon resistor inserted in the high side of the generator leads and 150Ω carbon resistor in the low side of the signal generator. Connect another resistor of 50Ω directly across the signal generator output terminals.

LOW BAND RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	Dummy antenna (See above)	Across antenna terminals.	54MC	Depress #2 button and then release by slightly depressing any other low band button.	DC Probe to Point (E) (terminal "B" on IF sub-chassis strip). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
14.	"	"	81.75MC	Remove #5 push-button knob and then depress #5.	"	Channel #5 push-button set screw.	"
15.	"	"	79MC	"	DC Probe to Point (B) Common to Point (C)	A16,A17	Adjust for maximum deflection. Attenuate signal generator to read approximately 1 volt during this adjustment.

ALIGNMENT INSTRUCTIONS (CONT.)

HIGH BAND RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
16.	Dummy antenna (See above)	Across antenna terminals.	174MC	Depress #7 push-button and then release by slightly depressing any other high band push-button.	DC Probe to Point (E) Common to chassis.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
17.	"	"	218MC	Depress #13 with knob removed.	"	Channel #13 push button set screw.	"
18.	"	"	185.75MC	Depress #8 with knob removed.	"	Channel #8 push button set screw.	"
19.	"	"	183MC	"	DC Probe to Point (E) Common to Point (C)	A19,A20	Adjust for maximum deflection. Attenuate signal generator to give VTVM reading of 1 volt during this adjustments.

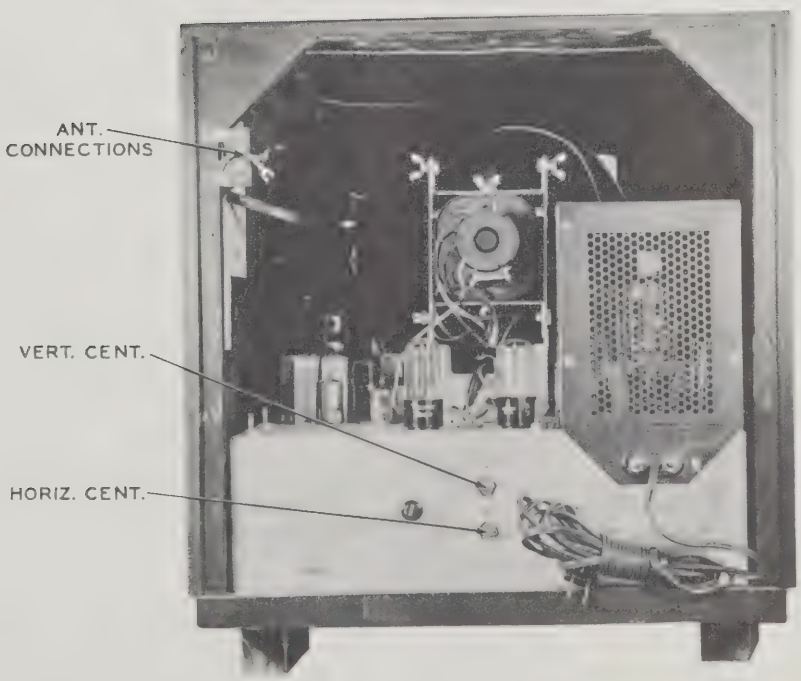
WAVETRAP ADJUSTMENTS

Wave traps A21 and A22 are used for specific types of interference and their alignment will depend upon the type encountered. With the receiver tuned to the channel having the interference, set the fine tuning control until the interference is maximum. Adjust A21 and A22 for minimum interference in the picture and sound keeping the trimmers at approximately the same position. Turn both trimmers fully clockwise. Adjust A21 1/4 turn counterclockwise and then A22. Repeat until the interference is at a minimum

PUSHBUTTON ADJUSTMENTS

After the receiver has been completely aligned, connect the VTVM at the discriminator output. Feed in the sound frequency of the various channels and turn the individual channel pushbutton adjustment screws until the VTVM reads zero with a positive and negative reading on either side of the zero setting.

FIG. 1



CABINET-REAR VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	225VDC	225VDC	0V	6.3VAC	-20VDC	-20VDC	0V		
V 2	6J6	15VDC	15VDC	0V	6.3VAC	-3.6VDC	-3.6VDC	0V		
V 3	6J6	125VDC	125VDC	0V	6.3VAC	§-5.2 VDC	§-5.2 VDC	0V		
V 4	6AG5	-8.2VDC	0V	6.3VAC	0V	165VDC	165VDC	0V		
V 5	6AG5	-9.1VDC	0V	6.3VAC	0V	170VDC	170VDC	0V		
V 6	6AG5	-9.5VDC	0V	6.3VAC	0V	173VDC	173VDC	0V		
V 7	6AG5	0V	2VDC	6.3VAC	0V	175VDC	175VDC	2VDC		
V 8	6AC7	‡150VDC	♦-150 VDC	‡0V	0V	‡0V	‡75VDC	♦-150 VDC	‡83VDC	
V 9	6AG5	0V	2VDC	6.3VAC	0V	180VDC	180VDC	2VDC		
V 10	6AU6	-.4VDC	0V	6.3VAC	0V	36VDC	36VDC	0V		
V 11	6T8	-.8VDC	-.8VDC	0V	0V	6.3VAC	-20VDC	0V	-.7VDC	90VDC
V 12	6Y6G	‡0V	♦-150 VDC	‡110VDC	‡115VDC	0V	0V	♦-150 VDC	‡48VDC	
V 13	6AL5	‡-.5VDC	‡-.5VDC	♦-150 VDC	♦-150 VDC	‡0V	‡0V	‡-45 VDC		
V 14	6SN7GT	‡50VDC	‡100VDC	‡55VDC	‡-.5VDC	‡55VDC	‡0V	♦-150 VDC	♦-150 VDC	
V 15	6SN7GT	-24VDC	225VDC	0V	-210VDC	-30VDC	-60VDC	6.3VAC	0V	
V 16	6SN7GT	‡40VDC ‡60VDC	‡50VDC ‡110VDC	‡0V	‡-3VDC	‡320VDC	‡3VDC ‡11VDC	♦-150 VDC	♦-150 VDC	
V 17	6SN7GT	‡-25 VDC	‡145VDC	‡0V	‡-7VDC	‡72VDC ‡135VDC	‡-3VDC	♦-150 VDC	♦-150 VDC	
V 18	6BG6G	‡270VDC	♦-150 VDC	‡7VDC	‡340VDC	‡-3VDC	‡0V	♦-150 VDC	‡265VDC	*
V 19	6W4GT	11.5VDC 22VDC	0V	300VDC	280VDC	157VDC	50VDC	6.3VAC	0V	
V 20	1B3GT	* DO NOT MEASURE.								
V 21	6W4GT	0V	-100VDC	245VDC	180VDC	290VAC	-150VDC	6.3VAC	0V	
V 22	6W4GT	0V	260VDC	245VDC	0V	290VAC	300VDC	6.3VAC	0V	
V 23	10BP4	0V	-100VDC	PIN 10 255VDC	PIN 11 -40VDC	PIN 12 6.3VAC				

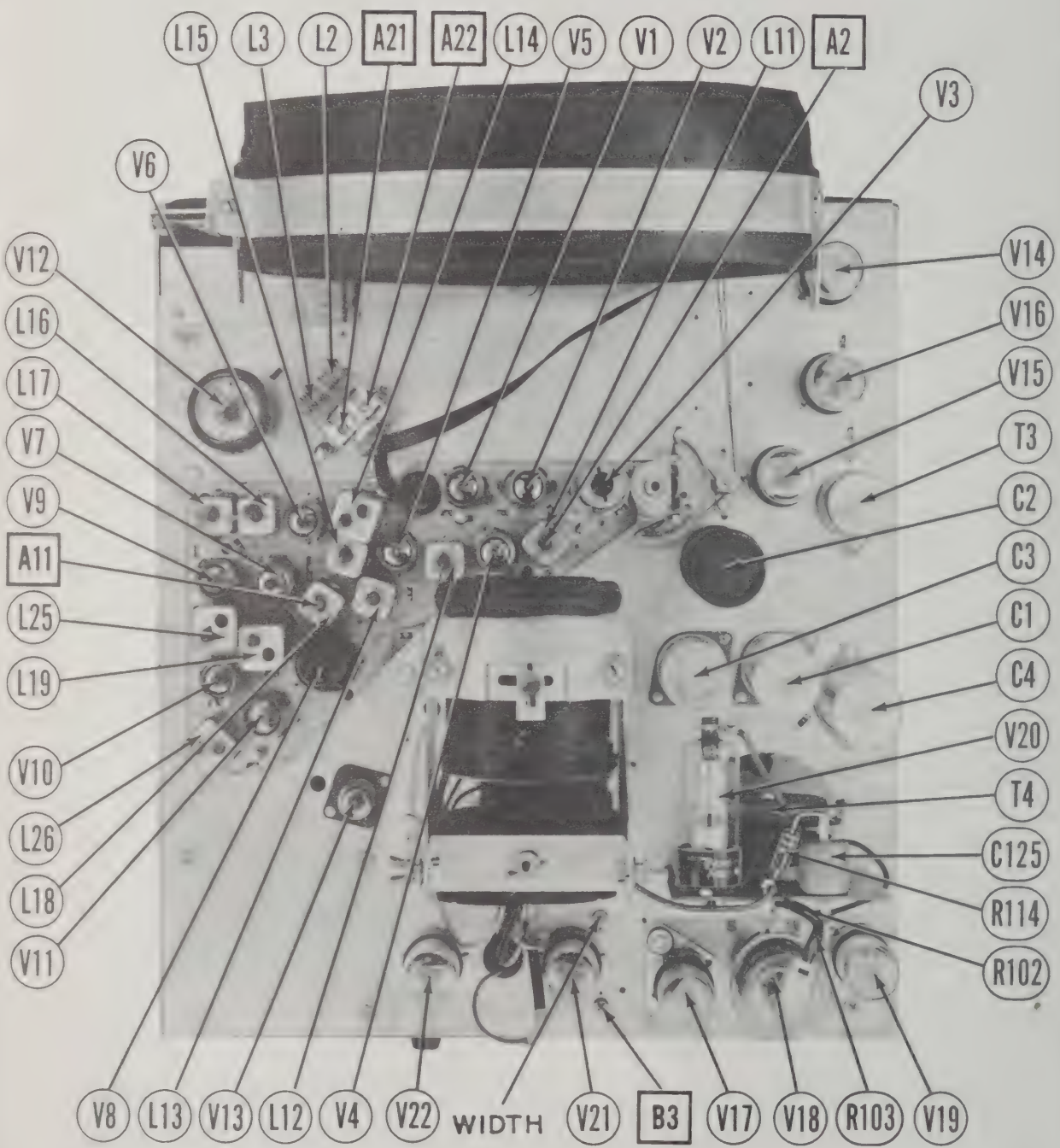
* Do Not Measure.
‡ Measured From Pin 3 Of V16.
♦ 6.3 VAC Measured Across Filament.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†3KΩ	†3KΩ	0Ω	.1Ω	36KΩ	36KΩ	470Ω		
V 2	6J6	†2KΩ	†2KΩ	0Ω	.1Ω	230KΩ	230KΩ	0Ω		
V 3	6J6	†1000Ω	†1000Ω	0Ω	.1Ω	22KΩ	22KΩ	0Ω		
V 4	6AG5	85KΩ	68Ω	.1Ω	0Ω	†1000Ω	†1000Ω	68Ω		
V 5	6AG5	12KΩ	68Ω	.1Ω	0Ω	†1000Ω	†1000Ω	68Ω		
V 6	6AG5	5.8KΩ	68Ω	.1Ω	0Ω	†700Ω	†700Ω	68Ω		
V 7	6AG5	0Ω	150Ω	.1Ω	0Ω	†500Ω	†500Ω	150Ω		
V 8	6AC7	0Ω	‡0Ω	‡0Ω	‡4.5KΩ	‡0Ω	18KΩ	‡0Ω	6KΩ	
V 9	6AG5	0Ω	220Ω	.1Ω	0Ω	†530Ω	†530Ω	220Ω		
V 10	6AU6	56KΩ	‡0Ω	.1Ω	0Ω	†14KΩ	†14KΩ	27Ω		
V 11	6T8	100KΩ	100KΩ	200KΩ	0Ω	.1Ω	35KΩ	0Ω	10 Meg.	180KΩ
V 12	6Y6G	Inf.	‡0Ω	360Ω	220Ω	‡220Ω	‡7Ω	‡.1Ω	‡220Ω	
V 13	6AL5	10 Meg.	10 Meg.	‡0Ω	‡0Ω	‡0Ω	‡0Ω	‡2.2 Meg.		
V 14	6SN7GT	5.6 Meg.	8KΩ	‡16KΩ	10 Meg.	22KΩ	‡0Ω	‡.1Ω	‡0Ω	
V 15	6SN7GT	8KΩ	†5KΩ	0Ω	1 Meg.	†22KΩ	6KΩ	.1Ω	0Ω	
V 16	6SN7GT	‡2 Megs ‡1.2 Meg	#2.5 Meg #1.4 Meg	‡0Ω	‡4.7 Meg	†5KΩ	‡1.9KΩ ‡44Ω	‡.1Ω	‡0Ω	
V 17	6SN7GT	‡270KΩ	#160KΩ	‡0Ω	‡760KΩ	‡200KΩ ‡100KΩ	‡270KΩ	‡.1Ω	‡0Ω	
V 18	6BG6G	†4.7KΩ	‡.1Ω	‡68Ω	†1.8KΩ	‡1 Meg	Inf.	‡0Ω	†4.8KΩ	#220Ω
V 19	6W4GT	220KΩ	Inf.	320KΩ	320KΩ	6KΩ	520KΩ	.1Ω	0Ω	
V 20	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	#750Ω
V 21	6W4GT	Inf.	330KΩ	7KΩ	6KΩ	5KΩ	5KΩ	.1Ω	0Ω	
V 22	6W4GT	Inf.	160KΩ	7KΩ	Inf.	5KΩ	290KΩ	.1Ω	0Ω	
V 23	10BP4	0Ω	330KΩ	PIN 10 360KΩ	PIN 11 6KΩ	PIN 12 .1Ω				

† Measured From Pin 3 Of V21.
# Measured From Pin 3 Of V19.
‡ Measured From Pin 3 Of V16.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



CHASSIS TOP VIEW

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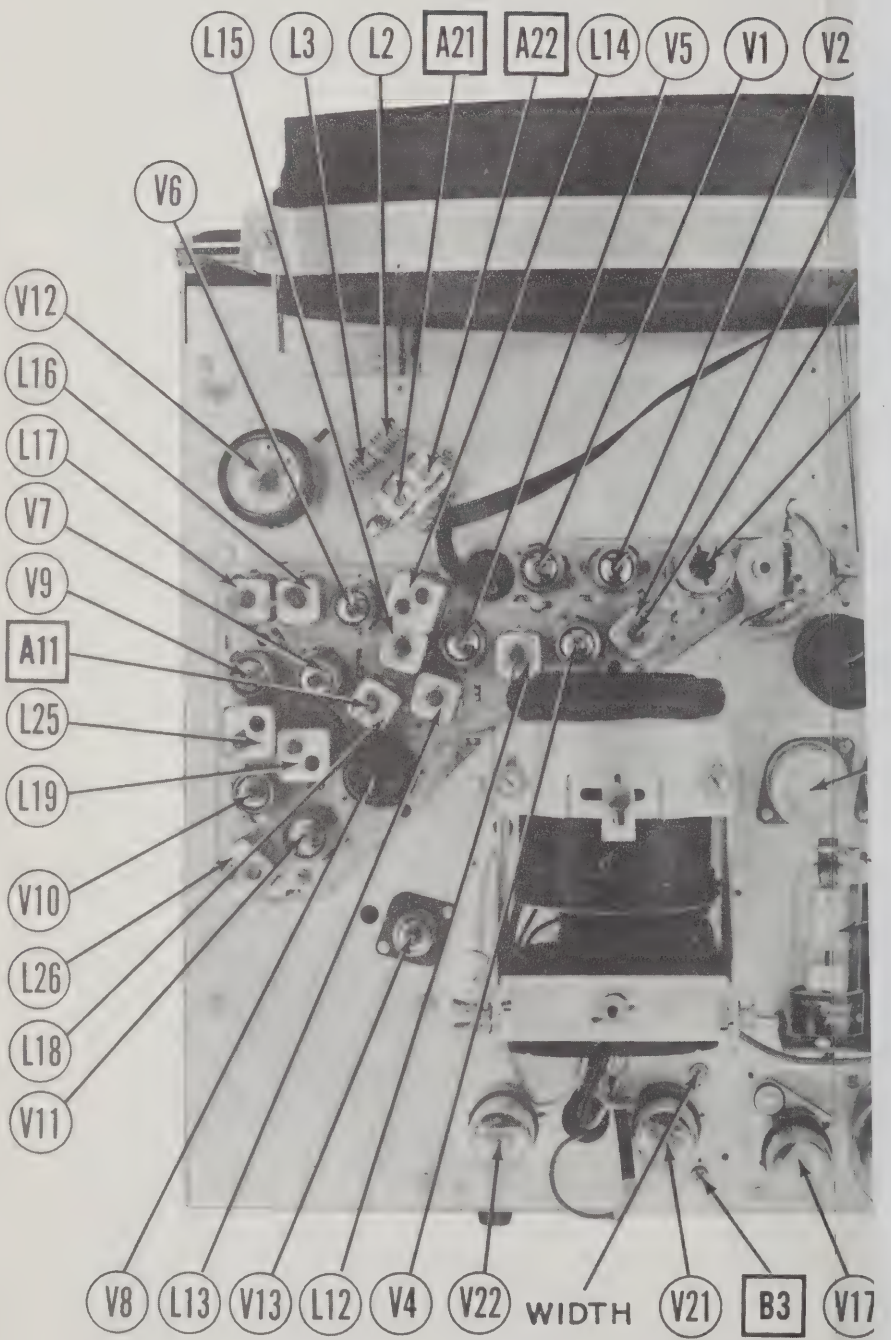
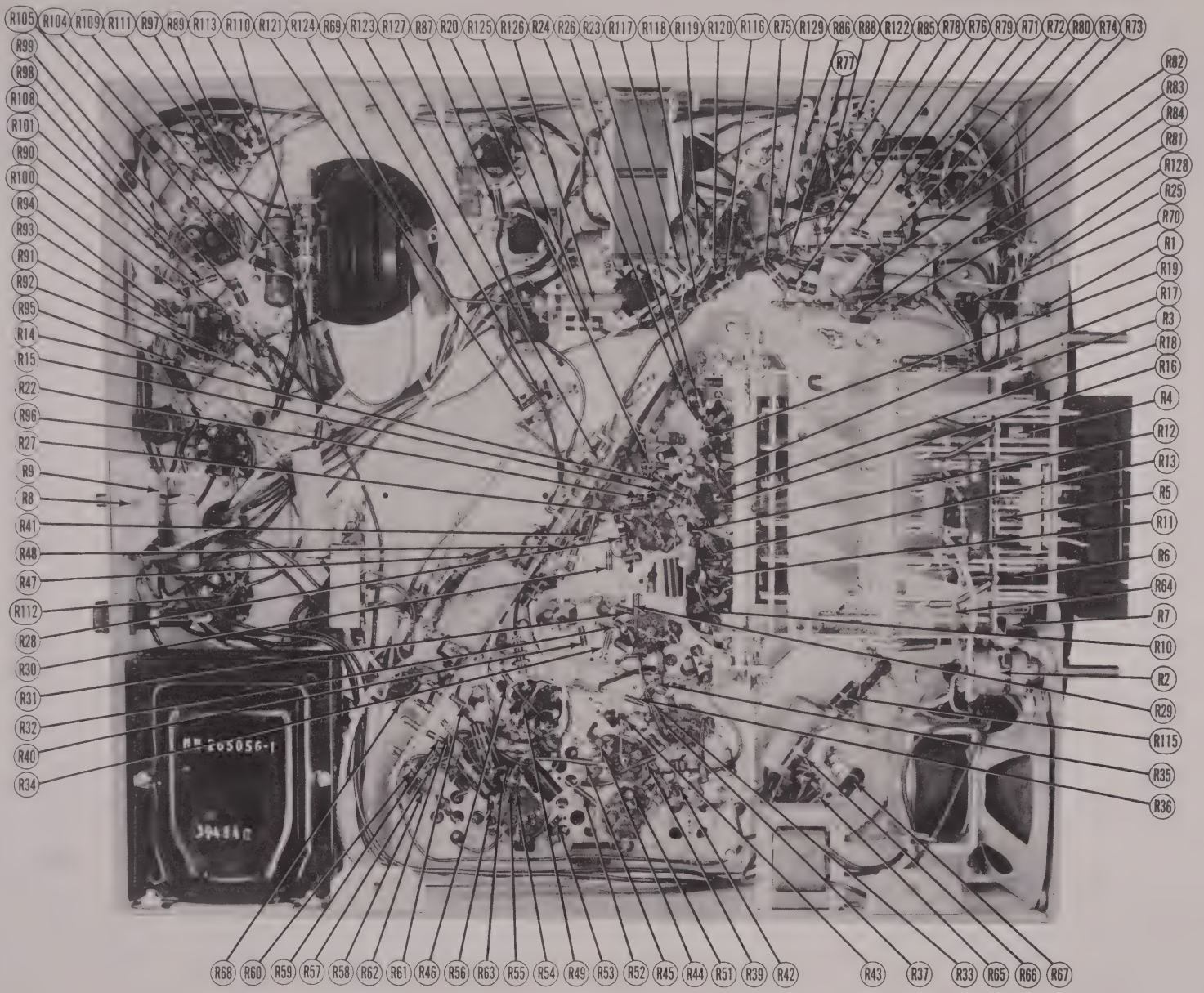
* * *



CHASSIS TOP VIEW

CHASSIS BOTTOM VIEW–CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

CHASSIS CODE VARIATIONS

MA, MB, MC, AND MD CHASSIS CODES

The following chart provides the chassis differences between the four chassis codes MA, MB, MC and MD. Refer to the Schematic Diagram, which is based on the code MD chassis. Both RF and main chassis are coded by a large block letter within a square stamped in ink on each chassis. The IF-RF chassis code is usually found near V8, and on the main chassis the code letter is stamped on the rear apron. The component revisions effected by the various changes are listed in the second left hand column. Under the right hand columns headed MA, MB, MC, and MD are listed the revisions as applied to each chassis code.

CHASSIS	DESCRIPTION	MAIN CHASSIS & IF-RF CHASSIS CODES			
		MA	MB	MC	MD
Main	Chassis includes additional Resistor, 1.8K 1W, connected in plate circuit of V15A.	Yes	No	No	No
Main	Value of Resistor R75, ± 10% 1W, in plate circuit of V15A.	1.8K	3.3K	3.3K	3.3K
Main	Chassis includes Capacitor C99, .02 mfd 400V, connected in plate circuit of V15A.	No	Yes	Yes	Yes
Main	Chassis includes Resistor R129, 22K ± 10% 1/2W, connected in plate circuit of V15A.	No	Yes	Yes	Yes
IF-RF	Chassis includes Coil L14B connected in plate circuit of V5.	Yes	Yes	No	No
IF-RF	Chassis includes Coil L13 connected to pins #5 and #6 of tube	V6	V6	V5	V5
IF-RF	Chassis includes Coil L16 connected to pins #5 and #6 of tube	V9	V9	V6	V6
IF-RF	Chassis includes Resistor R50, 100 ohms 1/2W, connected to terminal 2 of Transformer L25 and pin #1 of V9.	Yes	Yes	No	No
IF-RF	Chassis includes transformer L25 connected to plate circuit of tube: a. Grid circuit of V7. b. Plate circuit of V9.	a	a	b	b
IF-RF	Chassis includes Capacitor a.(C84) - 10 mmf 500V, connected to pin #5 of V9. b.(C80) - 27 mmf ± 10% 500V, connected to terminal 1 of L25 and ground. c. not used.	a	a	b	c
IF-RF	Chassis includes Resistor R53, 56K ± 10% 1/2W a. Connected to pin #1 of V10 and ground. b. Connected to terminal 1 of L25 and ground.	a	a	b	b
IF-RF	Chassis includes Capacitor C74, 2.7 mmf connected between pins #5 and #6 of V9.	No	No	Yes	Yes
IF-RF	Chassis includes Coil L17 connected in grid circuit of tube	V6	V6	V7	V7
IF-RF	Chassis includes sound take-off Transformer L14 in grid circuit of V6.	No	No	Yes	Yes
IF-RF	Chassis includes 1000 ohms 1/2W resistor connected to pin #6 of V7.	Yes	Yes	No	No
IF-RF	Value of Resistor R34 connected in IF circuit (ohms 1/2W).	220	220	1000	1000
IF-RF	Chassis includes Resistor R39, 220 ohms 1/2W, connected to: a. Junction of R33 and R38. b. Between pin #6 of V6 and pin #6 of V7.	a	a	b	b
IF-RF	Value of Capacitor C63, in 4th Video IF Screen Circuit.	2700	2700	1000	1000
IF-RF	Chassis includes Resistor R33, 220 ohms 1/2W, connected to: a. Pin #6 of V5. b. Pin #6 of V7 and junction of R52 and B+.	a	a	b	b
IF-RF	Chassis includes Resistor R38, 220 ohms 1/2W, connected to: a. Pin #6 of V6 and junction of R33 and R39. b. Pin #6 of V5 and pin #6 of V6.	a	a	b	b
IF-RF	Chassis includes Resistor R29, 220 ohms 1/2W, connected: a. To pin #6 of V4 and R33. b. To pin #6 of V4 and pin #6 of V5.	a	a	b	b
IF-RF	Value of Resistor R30 connected in IF bias circuit (ohms 1/2W).	220	220	10K	10K
IF-RF	Value of Resistor R36 connected in grid circuit of V7 (ohms 1/2W).	39K	39K	12K	12K
IF-RF	Chassis includes 8.2K ± 10% 1/2W resistor connected to pins #5 and #6 of V7.	No	No	Yes	Yes
IF-RF	Value of Resistor R43 connected to pin #1 of V7 (ohms 1/2W).	12K	12K	39K	39K
IF-RF	Alignment frequency of Coils L12 and L18 (megacycles).	35.7	35.7	35.9	35.9
IF-RF	Value of Resistor R31 connected to pin #1 of V5 (ohms ± 5% 1/2W).	8.2K	8.2K	5.1K	5.1K
IF-RF	Chassis includes IF test point and accompanying Resistor R22, 100K 1/2W, connected to plate circuit of V2.	No	No	Yes	Yes
IF-RF	Value of Resistor R46 connected to pin #4 of V8 (ohms 1/2W).	220K	220K	47K	47K
Main	Chassis includes socket and tube V13 (6AL5) with the accompanying components: Resistor R68, 2.2 meg ± 10% 1/2W, and Capacitor C96, .05 mfd 600V.	No	No	Yes	Yes
Main	Value of Capacitor C97 connected to terminal "N".	.680 mmf	680 mmf	.05 mfd	.05 mfd
Main	Chassis includes Capacitor C96, .05 mfd 600V connected between terminal 6 of Transformer T4 and pin #7 of tube V13 (6AL5).	No	No	Yes	Yes
Main	Value of Resistor R119 (ohms 1/2W)	12K	12K	22K	22K
IF-RF	Chassis includes Resistor R21, 100 ohms 1/2W, connected to terminal "R".	Yes	Yes	Yes	No
IF-RF	Chassis includes Resistor R19: a. 33K 1/2W, connected to pin #5 of V3. b. 220K 1/2W, connected to ground and junction of R17 and R18.	a	a	a	b
IF-RF	Chassis includes Resistor R11, 6.2K ± 5% 1/2W, connected: a. In parallel with alignment point A17. b. Between the junction of C9 and C16 and the junction of C10 and C14.	a	a	a	b
IF-RF	Chassis includes Resistor R12, 47 ohms 1/2W, connected between pin #7 of V1 and ground.	No	No	No	Yes

BENDIX MODELS
235B1, 235M1 (Ch. CODE MA, MB, MC)

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	[illegible]	[illegible]	[illegible]	
V2	Mixer	[illegible]	[illegible]	[illegible]	
V3	[illegible]	[illegible]	[illegible]	[illegible]	
V4	[illegible]	[illegible]	[illegible]	[illegible]	
V5	[illegible]	[illegible]	[illegible]	[illegible]	
V6	[illegible]	[illegible]	[illegible]	[illegible]	
V7	[illegible]	[illegible]	[illegible]	[illegible]	
V8	Limiter	[illegible]	[illegible]	[illegible]	
V9	[illegible]	[illegible]	[illegible]	[illegible]	
V10	[illegible]	[illegible]	[illegible]	[illegible]	
V11	[illegible]	[illegible]	[illegible]	[illegible]	
V12	[illegible]	[illegible]	[illegible]	[illegible]	
V13	[illegible]	[illegible]	[illegible]	[illegible]	
V14	[illegible]	[illegible]	[illegible]	[illegible]	Used in chassis models MC and MD
V15	Sync. Clipper-AGC Amp.	6SN7GT	6SN7GT	6BD	
V16	Vert.Osc.-Disch.-Output	6SN7GT	6SN7GT	6BD	
V17	[illegible]	[illegible]	[illegible]	[illegible]	
V18	[illegible]	[illegible]	[illegible]	[illegible]	
V19	[illegible]	[illegible]	[illegible]	[illegible]	
V20	Damper	6W4GT	6W4GT	4CG	
V21	HV Rectifier	1B3GT	1B3GT	3C	
V22	[illegible]	[illegible]	[illegible]	[illegible]	
V23	[illegible]	[illegible]	[illegible]	[illegible]	
V24	[illegible]	[illegible]	[illegible]	[illegible]	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		TVL-64	▲ Filter
C2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			▲ Filter
C3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			▲ Filter
C4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			■ Decoupling
C5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			◓ Decoupling
C6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Decoupling
C7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]		TVL-64	Hor. Cent. Cont. Bypass
C8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Vert. Cent. Cont. Byp.
C9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			■ Filter
C10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			▲ Output Plate Dec.
C11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			◓ Vert. Output Plate Dec.
C12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Vert. Output Cath. Byp.
C13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Contrast Cont. Bypass
C14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			AGC Amp. Plate Bypass
C15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Video Amp. Screen Byp.
C16	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Vert. Output Cath. Bypass
C17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3P1K-25			RF Coupling
C23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3P1K-25			" "
C24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			AGC Filter
C25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			AGC Filter
C26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			AGC Filter
C27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Neutralizing
C28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			"
C29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			RF Plate Decoupling
C30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3P1K-25			RF Fil. Bypass
C32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3P1K-25			RF Coupling
C33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	3P1K-25			"
C34	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C36	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Mixer Grid Filter
C37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Mixer Plate Dec.
C38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Decoupling
C39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Decoupling
C40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Mixer Fil. Bypass
C41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Osc. Coupling
C42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			"
C43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Neutralizing
C44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			"
C45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Filament Bypass
C49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			IF Coupling
C50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			1st IF Decoupling
C51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			1st IF Fil. Bypass
C52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C56	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C57	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C61	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C62	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C63	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C65	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C66	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C68	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C69	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C72	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C73	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C75	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C76	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C78	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C81	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C82	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C83	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C84	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C85	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C86	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C87	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C88	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C89	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C90	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C92	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C93	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C94	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C95	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C96	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C97	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C98	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C99	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C101	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C102	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C103	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C104	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C105	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C106	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C107	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C108	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C109	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C110	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C111	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C112	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C113	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C114	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C115	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C116	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C117	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C118	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C119	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C120	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C121	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C122	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C123	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C124	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "
C125	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			" "

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP1K-15			Fixed Trimmer
C2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP1K-15			" "
C3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		4th IF Cath. Bypass
C4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		4th IF Decoupling
C5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		4th IF Fil. Bypass
C7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		Video Amp. Cath. Bypass
C8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		Video Amp. Screen Byp.
C9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		Video Amp. Fil. Byp.
C10	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C11	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C12	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		S. IF Cath. Bypass
C13	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		S. IF Decoupling
C14	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]			Fixed Trimmer
C15	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		S. IF Fil. Bypass
C16	150	500	*						Fixed Trimmer
C17	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		RF Bypass
C18	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		Decoupling
C19	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C20	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C21	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C22	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C23	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C24	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C25	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C26	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C27	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C28	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C29	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C30	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C31	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C33	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C34	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C35	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C36	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C37	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C38	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C39	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C40	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C41	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C42	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C43	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C44	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C45	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C46	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C47	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C48	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C49	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C50	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C51	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C53	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C54	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C55	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C56	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C57	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C58	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C60	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C61	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C62	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C63	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C64	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C65	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C66	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C67	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C68	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C69	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C70	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C71	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C72	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C73	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C74	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C75	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C76	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C77	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C78	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C79	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C80	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C81	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C82	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C83	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C84	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C85	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C86	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C87	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C88	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C89	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C90	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C91	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C92	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C93	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C94	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C95	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C96	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C97	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C98	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C99	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C100	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C101	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C102	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C103	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C104	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C105	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C106	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C107	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C108	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C109	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C110	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C111	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C112	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C113	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C114	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C115	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C116	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C117	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C118	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C119	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C120	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C121	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C122	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C123	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C124	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "
C125	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	GP2L-001	MO.3-21		" "

* Filament RF Choke assembly obtainable under MFGR'S Part No. LF0001.
† Item C71 and L24 are combined into one unit obtainable under MFGR'S Part No. TV0P01.
‡ Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1	250KΩ	‡	RV0C11			Brightness control
R2A	500KΩ	‡	RV0D00			Volume control
B	600Ω	‡				Contrast control and switch
R3	2 Meg.	‡	RV4C05		M-83-S	Height control
R4	100KΩ	‡	RV0C10		15/16-43-S	Horiz. hold control
R5	250Ω	4	RV0C07		10-2500	Focus control (Wire Wound)
R6	1 Meg.	‡	RV4C04		15/16-61-S	Vert. hold control
R7	1500Ω	‡	RV0C08		43-1500	Vert. linearity control
R8	200Ω	2	RV0C06	W-200	58-200	Horiz. centering control
R9	100Ω	2	RV0C05	W-100	58-100	Vert. centering control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ARE ± 20% UNLESS OTHERWISE STATED.
R10	1000Ω	‡	RC2T19	BTS-1000	Bias Network
R11	620Ω	‡	RC2R81		Ant. Coil Shunt 5%
R12	47Ω	‡	RC2T15		RF Cathode
R13	68Ω	1	RC2T17		RF Plate
R14	470Ω	1	RC3S28		RF Plate Decoupling
R15	470Ω	1	RC3S26		" "
R16	510Ω	‡	RC2R80		RF Coil Shunt 5%
R17	10KΩ	‡	RC2R30		Mixer Grid 5%
R18	10KΩ	‡	RC2R30		" " 5%
R19	220KΩ	‡	RC2S46		" "
R20	6-8K	‡	RC2T17		Mixer Plate
R21	10K	‡	RC2T07		Decoupling

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: BENDIX PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R22	100K	‡	RC2T32	BTS-100K	Series Test Jack

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	BENDIX PART No.	IRC PART No.		
R125	560Ω	2	RC4S16	BT-2-560	Series Focus Coil	
R126	1500Ω	2		BT-2-1500	Focus Coil Shunt	
R127	7500Ω	5		AB-7500	Filter	
R128	120KΩ	½	RC2S43	BTS-120K	Voltage Divider	10%
R129	22KΩ	½	RC2T34	BTS-22K	Integrator	10%

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	BENDIX PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.
T1	117VAC @ 1.7A	600VCT @ .215 ADC	6.3VAC @ 4.7A	6.3VAC @ 8.3A	TP0Y00			

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING		REPLACEMENT DATA				NOTES
	DC RESISTANCE		BENDIX PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.					
T2	87Ω Tap @ 63Ω		TA0S00				Hor.Syncro-Guide Transformer.
T3	144Ω	1240Ω	T00V00	A-8121	TB0-1	A-3000	Vert.Osc.Transformer
T4	580Ω Tap @ 130Ω	SEC. 1 19.3Ω Tap @ 13.2Ω & .9Ω SEC. 2	TS0H01				Hor. Output Trans.
T5	570Ω	7Ω	TS0V00	A-8115	TS0-1	A-3035	Vert. Output Trans.
T6A	14Ω		LC0D00	DY-1			Hor. Deflection Yoke
B	61Ω						Vert. Deflection Yoke
T7	247Ω		LC0F00	FC-10			Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		BENDIX PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T8	1900Ω	3.1Ω	140Ω	.35Ω	TA0018	A-3876	R0-304	A-2928	

SPEAKER

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	BENDIX PART No.	JENSEN PART No.	QUAM PART No.	
SP1	98Ω	3.1Ω	SE4000		§	§ Supplied on request.
	CONE DIA.	V. C. DIA.				
SP2	4" x 6"	9/16"				

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	BENDIX PART No.	MEISSNER PART No.	
L2	Wave Trap	0Ω		TI0W01		
L3	Wave Trap	0Ω		TI0W01		
L4	RF Choke	.1Ω		LI0T09		
L5	RF Choke	.1Ω		LI0T10		
L6	RF Choke	0Ω		LI0T13		
L7	RF Choke	.1Ω		LI0T12		
L8	RF Choke	.1Ω		LI0T12		
L9	RF Choke	0Ω		LF0R00		Wound on 1.5KΩ resistor
L10	RF Choke	0Ω		LF0R00		Wound on 1.5KΩ resistor
L11	1st Video IF	0Ω		LI0T00		
L12	2nd Video IF	0Ω		LI0T02		
L13	3rd Video IF	0Ω		LI0T07		
L14A	Sound Take-Off	0Ω	0Ω	TI0I03		Chassis Codes MC and MD only.
B	3rd Video IF	0Ω		LI0T03		Chassis Codes MA and MB only.

PARTS LIST CONT. ON PAGE 19

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) CONT.

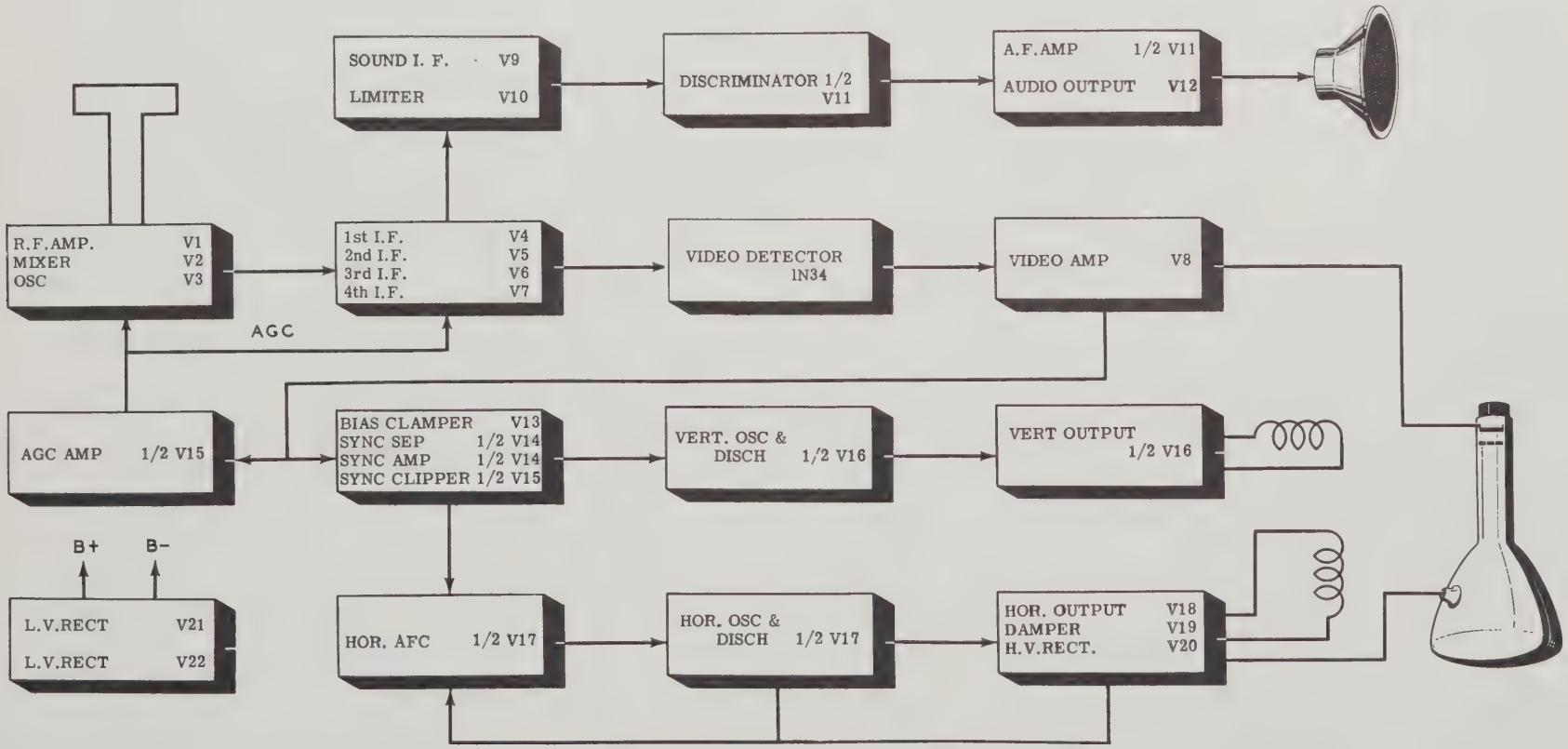
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA BENDIX PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L15	4th Video IF	0Ω		L10T05		
L16	Adjacent Sound IF	0Ω		L10T01		
L17	Adjacent Sound IF Trap	0Ω		L10T04		
L18	5th Video IF	0Ω		L10T06		
L19A	6th Video IF	0Ω		L10T08		Includes coupling cap., Video Det. 1N34
B	RF Choke	5Ω		LF0A06		and Det. load.
L20	Peaking	11Ω		LC0V00		
L21	Peaking	9Ω		LC0V02		
L22	Peaking	22Ω		LC0V01		
L23	Peaking	4Ω		LC0V03		
L24	4.5MC Trap	1Ω		TV0P00		Includes C71
L25	Sound IF Trans.	0Ω	0Ω	TI0I02		
L26	Disc.Trans.	0Ω	0Ω	TI0D22		
L27	Width Cont.	.3Ω		LC0W00		
L28	Hor. Linearity	35Ω		LC0L00		
L29	RF Choke	0Ω		LF0A06		
L30	RF Choke	0Ω		LF0A06		

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M1	Fuse	FC0M00	4A Type 3AG
M2	Fuse	FC0M01	.25A Type 3AG
M3	Switch	SS3P00	Tone Control
M4	RF Tuner	AR0T00	Complete
M5	Ion Trap	TI0P00	PM
	Cabinet	ZW0T00	Model 235M1
	Cabinet	ZW0T01	Model 235B1
	Safety Glass	GZ0S00	
	Button	BP0B04	Tone Control
	Button	BP0B05	Channel Push Buttons
	Crystal	1N34	Video Det.

HORIZONTAL SWEEP ADJUSTMENTS

1. Set the horizontal hold control to its mid position.
2. Adjust the horizontal drive trimmer (B1) for maximum voltage. The trimmer position occurs at approximately one or two turns out from maximum capacity. The high voltaged produced is 9.2 to 10.2KV at the picture tube high voltage anode.
3. Set the horizontal frequency trimmer (B2) to its mid range which is approximately one turn back from the maximum clockwise position.
4. Turn the horizontal oscillator coil slug (B3) until picture "syncs".
5. Turn the horizontal hold control fully counterclockwise. If picture fails to drop out of synchronization, momentarily interrupt the signal. (This may be done by switching to another channel and then back to the original channel.)
6. Slowly advance the horizontal hold control in the clockwise direction and note the least number of diagonal bars present on the raster just before the picture drops into synchronization.
7. If more than 6 1/2 bars were present just before the picture "syncs" adjust the horizontal lock-range (B4) slightly clockwise. If less than 4 bars were present just before synchronization, turn B4 slightly counterclockwise.
8. Advance the contrast control clockwise and momentarily remove the signal. When the signal is restored note the number of bars present. Repeat the adjust of B4 until 4 to 6 1/2 bars are present at the point of synchronization.
9. Check the range of the horizontal hold control starting from the fully counterclockwise position. Interrupt the signal momentarily. Normally the picture will fall out of sync. Turn the horizontal hold clockwise slowly until 4 to 6 1/2 bars appear on the raster. A slight advancement in the clockwise direction should cause full synchronization. This should occur at 90° of the rotation from the full CCW position and should hold for approximately 120° more before it drops out again. If these conditions cannot be met, repeat the procedure.



BENDIX 235M1

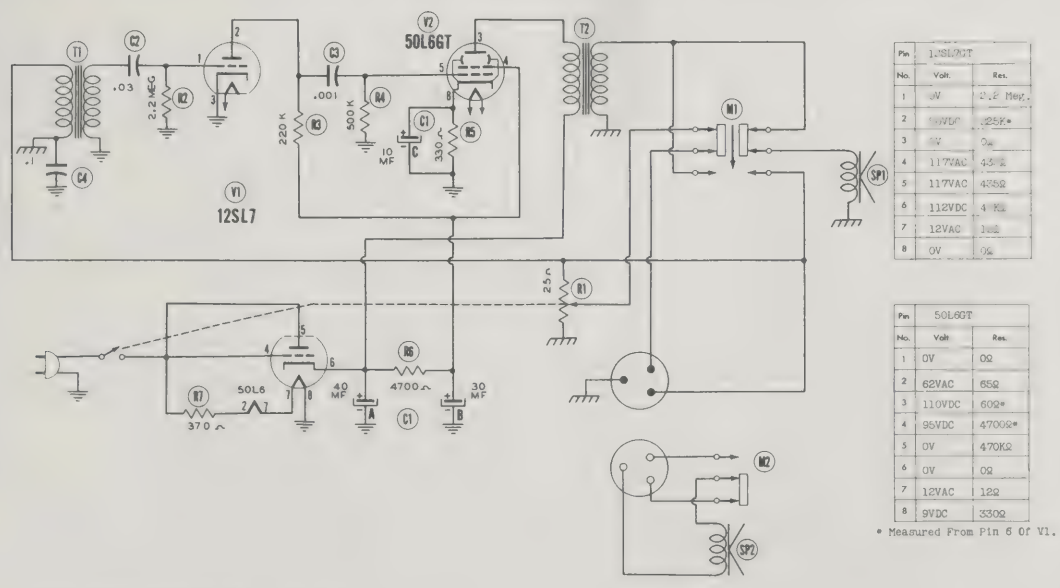
BLOCK DIAGRAM

VOLUME CONT. ON-OFF SW.

PRESS TO TALK SW.

BREAK IN SW.

TRADE NAME	Challenger, Model 20R, 200
MANUFACTURER	Challenger Amplifier Co., 663 Broadway, New York 12, N.Y.
TYPE SET	AC-DC Operated Intercommunication System.
TUBES (TWO)	Types 12SL7GT AF Amp. - Rectifier, 50L6GT Power Output.
POWER SUPPLY	110-120 Volts AC-DC RATING .17 Amp. @ 117 Volts AC



Pin No.	12SL7GT Volt.	Res.
1	0V	0.2 Meg.
2	95VDC	.25K*
3	0V	0Ω
4	117VAC	43Ω
5	117VAC	43Ω
6	112VDC	4 KΩ
7	12VAC	1Ω
8	0V	0Ω

Pin No.	50L6GT Volt.	Res.
1	0V	0Ω
2	62VAC	6Ω
3	110VDC	60Ω*
4	95VDC	4700Ω*
5	0V	470KΩ
6	0V	0Ω
7	12VAC	1Ω
8	9VDC	330Ω

* Measured From Pin 6 Of V1.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4917-5

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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DATE 9/49 4917-5 SET #69 FOLDER #5

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CHALLENGER PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	AF Amp.-Rectifier	12SL7GT	12SL7GT	8BD	
V2	Power Output	50L6GT	50L6GT	7AC	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CHALLENGER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150		AF86D4A	UP		DY-4030	E1-343	■ Filter
B	30	150			4415C		20-150		▲ Filter
C	10	150							Output Cath. Bypass
C2	.03	400		P488-03	GT4S3		ST-6-03	TM-13	Audio Coupling
C3	.001	600		P688-001	GT6D1	GP2L-003	ST-6-001	TM-21	Audio Coupling
C4	.1	400		P488-1	GT4F1		ST-4-1	TM-1	Line Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHALLENGER PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	25Ω	1	V-276		58S-25*	Volume control and switch

* Switch Attached At Factory

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CHALLENGER PART No.	IRC PART No.	IDENTIFICATION CODES
R2	2.2 Meg.	½		BTS-2.2 Meg.	AF Grid
R3	220KΩ	½		BTS-220K	AF Plate
R4	500KΩ	½		BTS-470K	Output Grid
R5	330Ω	½		BW-½-330	Output Cathode
R6	4700Ω	½		BTS-4700	Filter
R7	370Ω	10		ABA-400#	Line Dropping

\# Set Slider At 370Ω.

TRANSFORMER (INPUT)

ITEM No.	RATING: TURNS RATIO PRI. TO SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CHALLENGER PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	INSTALLATION NOTES
T1	1 TO 55	.5Ω	600Ω	T-129-1				

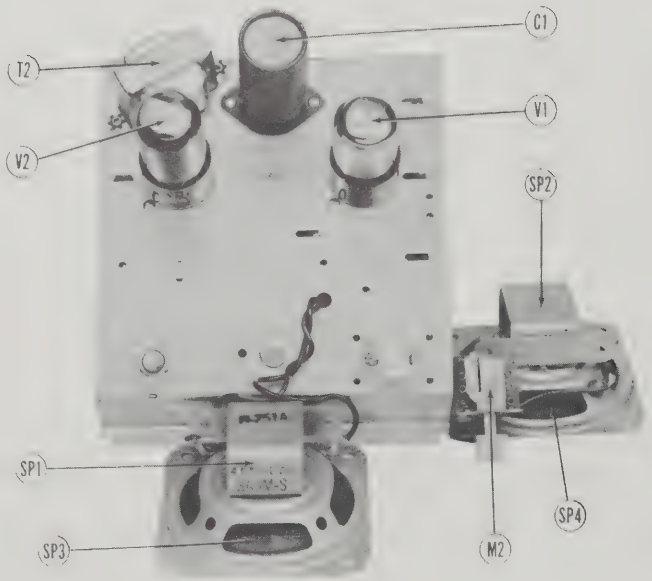
TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: CHALLENGER PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	INSTALLATION NOTES
T2	3000Ω	3.2Ω	60Ω	.3Ω	T-270-1	A-3876	RO-2	A-2928	

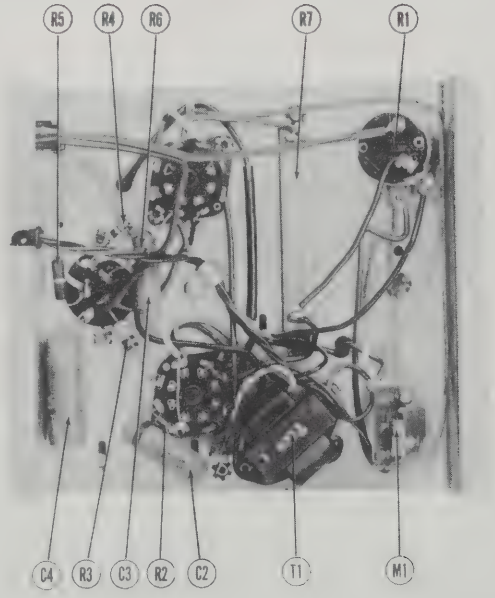
SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: CHALLENGER PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V.C. IMP.				
SP1	PM	3.2Ω			3A07	
SP2	PM	3.2Ω			3A07	
	CONE DIA.	V.C. DIA.				
SP3	3-3/8"	9/16"				
SP4	3-3/8"	9/16"				

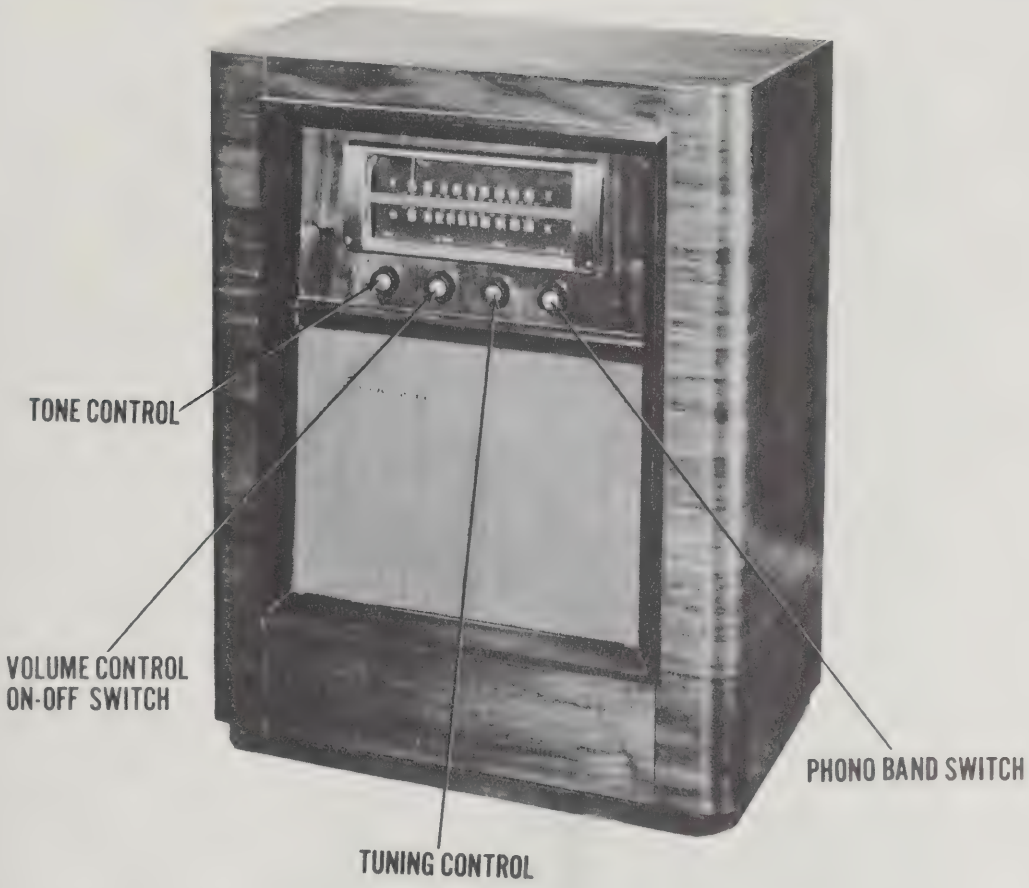
CHASSIS—TOP VIEW



CHASSIS—BOTTOM VIEW



CORONADO
MODEL 94RA1-43-6945A



CORONADO
MODEL 94RA1-43-6945A

CORONADO MODEL 94RA1-43-6945A

TRADE NAME	Coronado, Model 94RA1-43-6945A
SUPPLIER	Gamble-Skogmo, Inc., 15 N. 8th St., Minneapolis, Minn.
TYPE SET	AC Operated AM-FM Superheterodyne Receiver with Loop Antenna.
TUBES(SEVEN)	Types 6BE6 Converter, 6BA6 1st IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 Ratio Det., 6AV6 DET-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-125 Volts AC — RATING: .53 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC — FREQ. MOD. 88-108MC

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push-on type control knobs.
2. Remove 3 wires from loop antenna.
3. Remove FM antenna leads from terminal board on rear of chassis.
4. Remove speaker plugs at speaker.
5. Remove 3 1/4" hex head bolts holding receiver chassis to cabinet. Remove chassis.
6. Remove 4 screws holding speaker to cabinet. Remove speaker.
7. Loosen end of FM antenna over loop antenna and remove 4 phillips head screws holding loop antenna to cabinet. Remove loop antenna.

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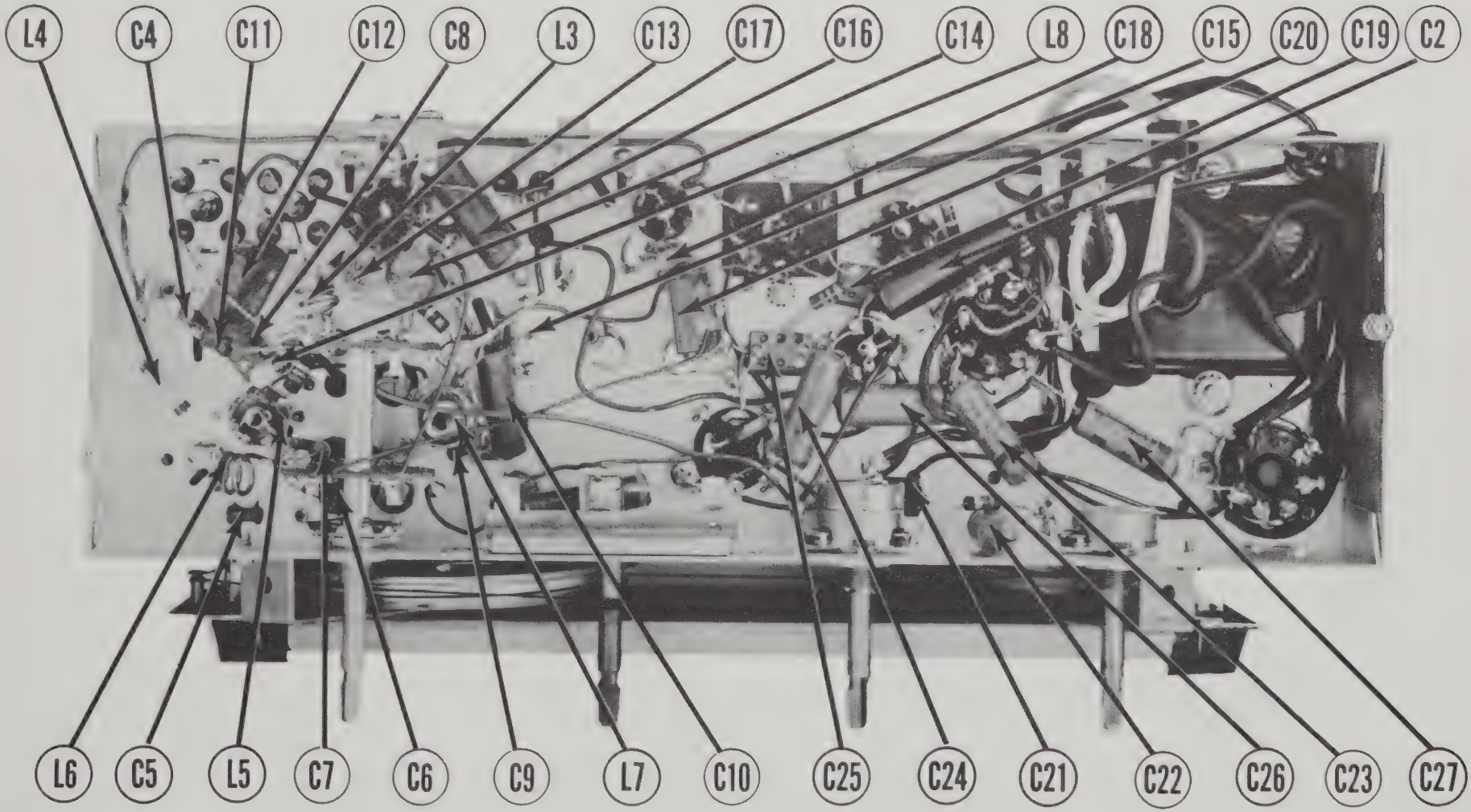
DATE 9/49 4917-6 SET #69 FOLDER #6


L4
C4
C11
C12
C8
L3
C13
C17
C16
C14
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C18
C15
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L6
C5
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C7
C6
C9
L7
C10
C25
C24
C21
C22
C26
C23
C27

R24
R18
R23
R15
R16
R17
A
A7
R14
R13
B
R12
R11
R9
R4
R8
A10
A4
R3
R2
R23
R20
R21
R1
R19
R22
R25
R7
R10
R6
M3
R5

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	6BE6	6BE6	7CH	
V2	1st IF Amp.	6BA6	6BA6	7BK	
V3	2nd FM IF Amp.	6BA6	6BA6	7BK	
V4	Ratio Det.	6AL5	6AL5	6BT	
V5	DET.-AVC-AF	6AV6	6AV6	7BT	
V6	Power Output	6V6GT	6V6GT	7AC	
V7	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: CORONADO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	350	45X359	AF88J4A	UP4445C		DY-406	EL-424*	◆ Filter
B	40	350		PRS350/24	BR2045			UT-203	■ Filter
C	20	350							▲ Filter
D	20	25							Output Cath. Bypass
C2	5	100	45X361	PRS150/4	BBR5-100		M-4-150	UT-41	Stabilizing Cap.
C3	6		47X521						Fixed Trimmer
C4	500		47X508	1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Conv. Fil. Bypass
C5	10		47X523	1469-00001	5R5Q1	NPOK-10	MOS.5-41	MS-41	Fixed Trimmer
C6	100		47X511	1469-0001	5R5T1	NPOM-100	MOS.5-31	MS-31	Fixed Padder
C7	47		47X517	1468-00005	5W5Q5	GP1K-47	MO.5-45	1FM-45	Osc. Grid Cap.
C8	100	500	47X476	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Osc. Anode Bypass
C9	12		47X522			GP1K-12			Fixed Trimmer
C10	.01	600	D66103	P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	Osc. Anode Decoupling
C11	10		47X512	1469-00001	5R5Q1	NPOK-10	MOS.5-41	MS-41	Fixed Trimmer
C12	4700	500	47X507	1467-005	1W5D5	811-005	MW.5-25	1FM-25	Conv. Plate Dec.
C13	5000		47X507	1467-005	1W5D5	811-005	MW.5-25	29C1	1st IF Cath. Bypass
C14	5000		47X507	1467-005	1W5D5	811-005	MW.5-25	29C1	1st IF Decoupling
C15A	50		47X112	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	Diode RF Filter
B	50			1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	" " "
C16	.05	200	B66503	P288-05	GT2S5		ST-4-05	TM-15	AVC Filter
C17	47		47X463	1468-00005	5W5Q5	GP1K-47	MO.5-45	1FM-45	IF Coupling
C18	5000		47X507	1467-005	1D5D5	811-005	MW.5-25	29C1	2nd IF Decoupling
C19	330		47X529	1468-0003	5W5T3	GP2K-330	MO.5-33	1FM-335	Diode Load Cap.
C20	2700	500	47X492	1467-0025	1W5D25	GP2M-0027	MW.5-225	1FM-23	De-emphasis
C21	68	500	47X471	1468-000075	5W5Q7	GP1K-68	MOS.5-47	1FM-475	Tone Comp.
C22	.04	200	B66403	P288-04	GT6S4		ST-6-04	TM-14	" "
C23	.004	600	B66402	P688-004	GT6D4	GP2M-0047	ST-6-004	TM-24	" "
C24	.005	600	D66502	P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Audio Coupling
C25	220	500	47X468	1468-00025	5W5T25	GP2K-220	MO.5-325	1FM-325	AF Plate Bypass
C26	.02	400	D66203	P488-02	GT4S2		ST-4-02	TM-12	Audio Coupling
C27	.001	600	H66102	P688-001	GT6D1		ST-6-001	TM-21	Output Plate Bypass
C28	1-8		26A489			532-1-8			Variable Trimmer

* Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: CORONADO PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	36X379	Q13-133X	AT-78	Volume control, tapped @ 100KΩ
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A Per Instructions
C	Switch		" "	76-1	SW-A	" " " " "
R2A	3 Meg.	½	40X288	Q13-140	AM-67-Z	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R2A Per Instructions.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

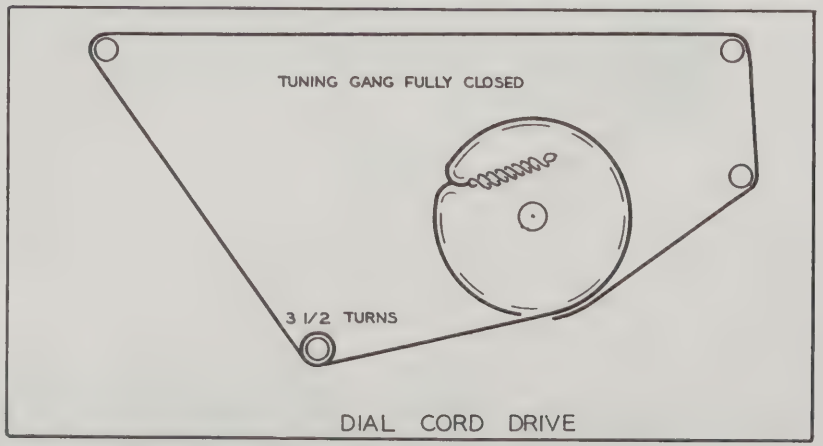
ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA: MEISSNER PART No.	
L1	FM Dipole	0Ω		9A2003		
L2	AM Loop Ant.	.8Ω		9A1972		
L3	FM Ant.	0Ω		9A1956		
L4	RF Choke	.1Ω		9A1882		
L5	Parasitic Supp.	0Ω		9A1940	-	2 turns #18 wire wound on 10Ω resistor.
L6	FM Osc.	0Ω		9A1938		
L7	AM Osc.	.5Ω	5.1Ω	9A1929	14-1060	
L8	RF Choke	.1Ω		9A1882		
L9	1st FM IF	.1Ω	1Ω	9A1932		
L10	1st AM IF	15.5Ω	15.1Ω		16-6678	
L11	2nd FM-AM IF		15Ω	9A1973		
L12	Ratio Det.	2.5Ω	.1Ω	9A1970		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: CORONADO PART No.	REPLACEMENT DATA	NOTES
M1	Bayonet	6-8V	.15	Brown	7A103		Type #47
M2	Bayonet	6-8V	.15	Brown	7A103		Type #47

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M3	Switch	2A383	Band
M4	2 Gang Var. Cap.	14A204	(14-498MMF, 21-297MMF)
A6	Trimmer	17A235	BC Ant. Adj.
A12	Trimmer	26A489	FM Osc. Adj.
	Dial Glass	58X714	
	Dial Pointer	15X245	



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	CORONADO PART No.	IRC PART No.	
R3	3.6Ω	½	43X233		Parasitic Supp. (Wire Wound)
R4	1200Ω	½	B84122	BTS-1200	Conv. Plate Decoupling
R5	22KΩ	½	B84223	BTS-22K	Osc. Grid
R6	3900Ω	½	B83392	BTS-3900-5%	Osc. Plate Decoupling 5%
R7	8200Ω	2	B84822	BT-2-8200	Bleeder
R8	68Ω	½	B83680	BW-½-68-5%	1st IF Cathode 5%
R9	1200Ω	½	B84122	BTS-1200	1st IF Decoupling
R10	47KΩ	½	B85473	BTS-47K	Diode Filter
R11	2.2 Meg.	½	B85225	BTS-2.2 Meg.	AVC Network
R12	2.2 Meg.	½	B85225	BTS-2.2 Meg.	2nd FM IF Grid
R13	1000Ω	½	B84102	BTS-1000	2nd FM IF Decoupling
R14	27KΩ	½	B84273	BTS-27K	De-emphasis
R15	3.6Ω	7	43X233	BW-½-3.6	Ratio Det. Filament (Wire Wound)
R16	680Ω	½	B84681	BTS-680	Balancing
R17	15KΩ	½	B84153	BTS-15K	Ratio Det. Diode Load
R18	15KΩ	½	B84153	BTS-15K	" " " "
R19	4.7 Meg.	½	B85475	BTS-4.7 Meg.	AVC Network
R20	15KΩ	½	B84153	BTS-15K	Tone Compensation
R21	10 Meg.	½	B85106	BTS-10 Meg.	AF Grid
R22	470KΩ	½	B85474	BTS-470K	AF Plate
R23	470KΩ	½	B85474	BTS-470K	Output Grid
R24	270Ω	1	B84271	BW-1-270	Output Cathode
R25A	1400Ω	6	43X224	AB-1450	Filter (Wire Wound)
B	1000Ω	4		AB-1000	Filter (Wire Wound)

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	CORONADO PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.
T1	117VAC @ .53A	530VCT @ .079A	5VAC @ 2A	6.3VAC @ 2.3A	53X290	P-6011#	PH-70B#	P-2851

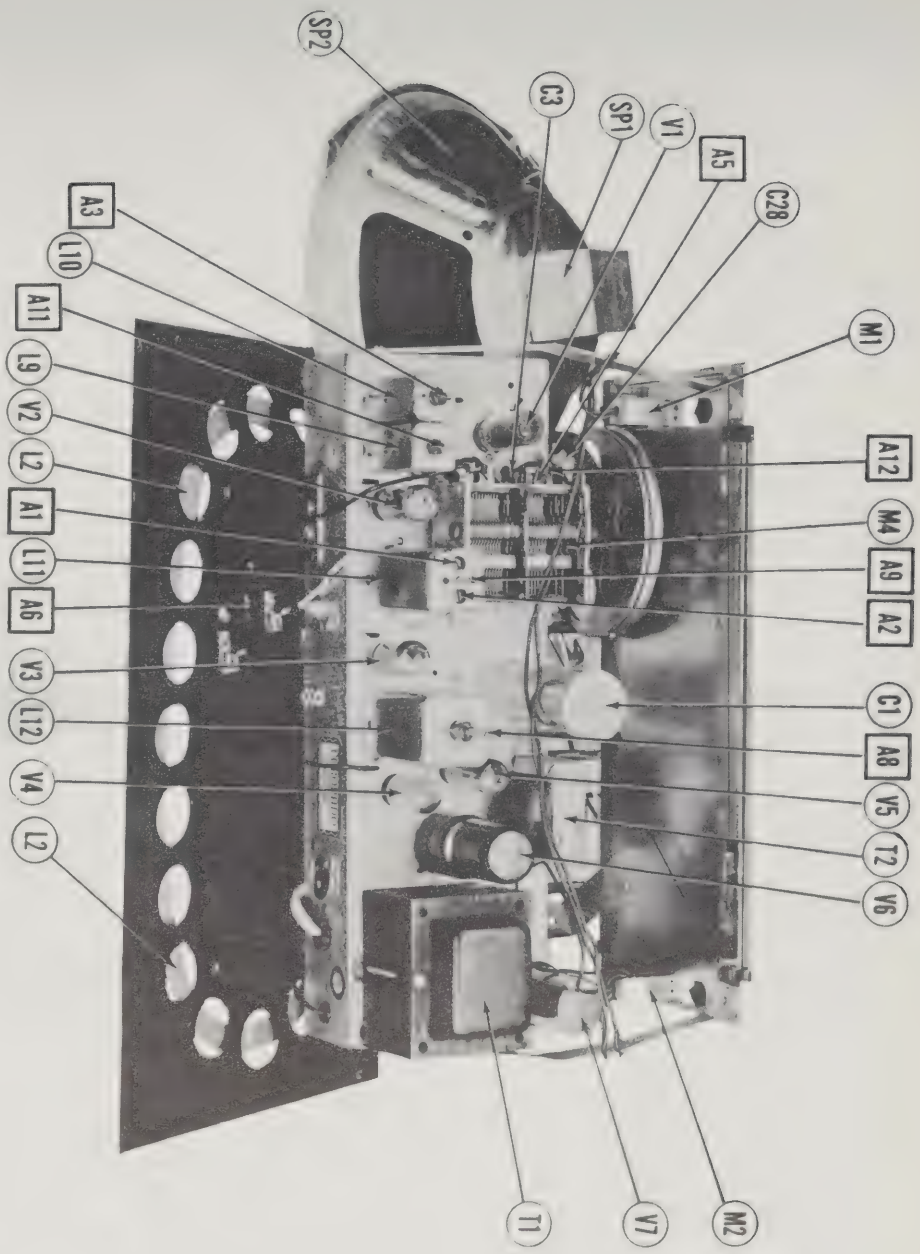
Add series resistor to reduce plate voltage.

TRANSFORMER (OUTPUT)

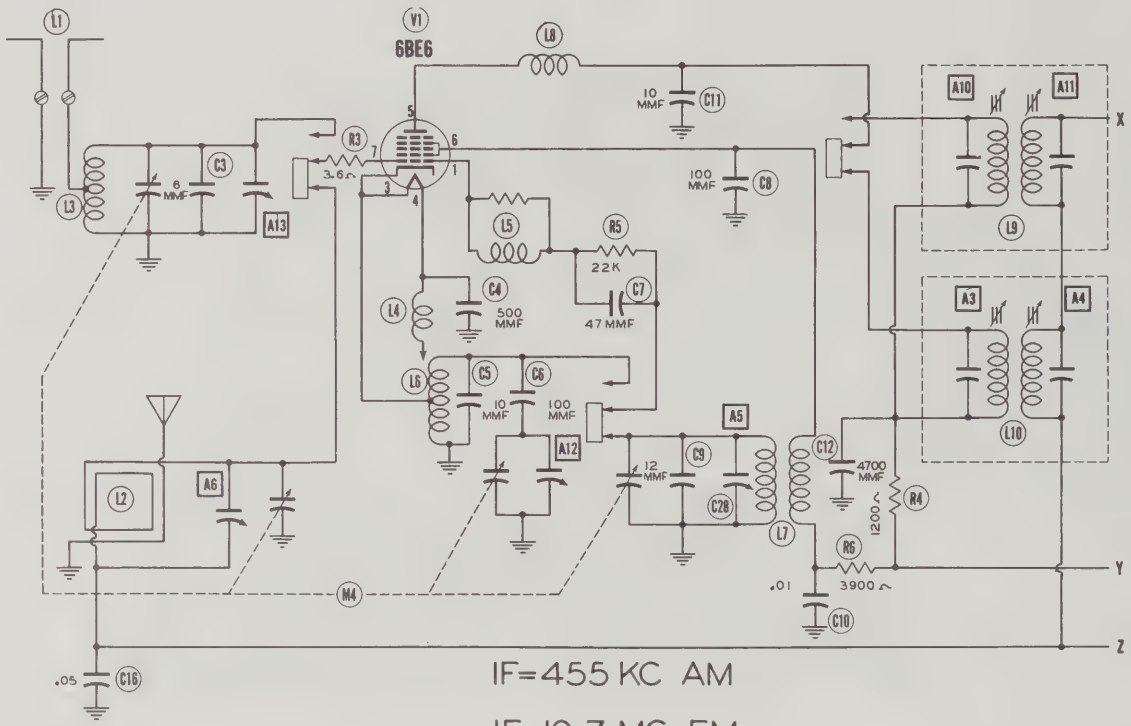
ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		CORONADO PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	6200Ω	3.7Ω	430Ω	.8Ω	51X134	A-3823	RO-9 §	A-2902	§ Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V. C. IMP.	CORONADO PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.7Ω	12A460	ST-119 ‡ MOD.P10-T	10A31	‡ Replace output transformer to match 6-8Ω voice coil
	CONE DIA.	V. C. DIA.				
SP2	9 1/4"	3/4"				



DATE 9/43 4617-6 SET #69 FOLDER 6



IF=455 KC AM

IF=10.7 MC FM

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1A	6BE6	§-4.8 VDC	0V	0V	6.3VAC	140VDC	107VDC	-.3VDC	
‡ V1B	6BE6	§-.4VDC	0V	0V	6.3VAC	130VDC	95VDC	0V	
V2	6BA6	-.3VDC	0V	0V	6.3VAC	122VDC	122VDC	1.1VDC	
‡V3	6BA6	-.6VDC	0V	0V	6.3VAC	115VDC	115VDC	0V	
‡V4	6AL5	0V	0V	0V	5.4VAC	.2VDC	.2VDC	-.2VDC	
V5	6AV6	-.6VDC	0V	0V	6.3VAC	0V	-.4VDC	63VDC	
V6	6V6GT	0V	6.3VAC	230VDC	185VDC	0V	0V	0V	9.3VDC
V7	5Y3GT	0V	250VDC	0V	260VAC	0V	260VAC	0V	250VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1A	6BE6	22KΩ	0Ω	0Ω	.1Ω	†4.5KΩ	†6.5KΩ	1.5 Meg.	
‡ V1B	6BE6	22KΩ	0Ω	0Ω	.1Ω	†4.5KΩ	†6.5KΩ	3.8Ω	
V2	6BA6	1.5 Meg.	0Ω	0Ω	.1Ω	†3.5KΩ	†3.5KΩ	68Ω	
‡V3	6BA6	2.2 Meg.	0Ω	0Ω	.1Ω	†3.5KΩ	†3.5KΩ	0Ω	
‡V4	6AL5	500KΩ	500KΩ	0Ω	2Ω	15KΩ	15KΩ	15KΩ	
V5	6AV6	10 Meg.	0Ω	0Ω	.1Ω	0Ω	500KΩ	†470KΩ	
V6	6V6GT	Inf.	.1Ω	†540Ω	†1.5KΩ	470KΩ	1Ω	0Ω	270Ω
V7	5Y3GT	Inf.	10KΩ	Inf.	100Ω	Inf.	105Ω	Inf.	10KΩ

† Measured From Pin 8 Of V7.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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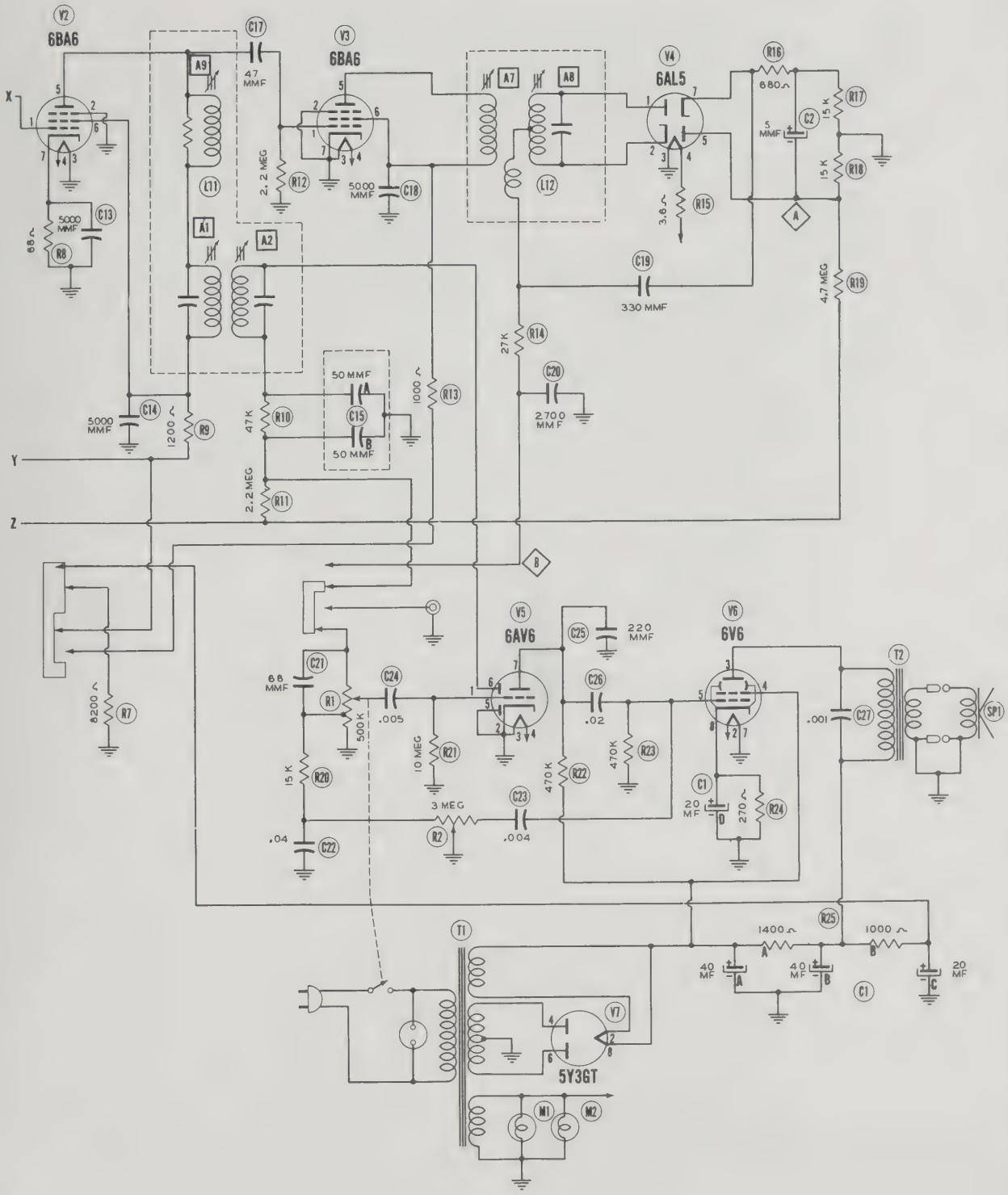

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

The AM IF transformers should be aligned before aligning the FM IF transformers.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 1 (Grid) of 6BA6 (V2). Low side to chassis.	455KC (400∿ Mod.)	AM (center position)	Tuning gang fully open	Across voice coil	A1,A2	Adjust for max. output.
2.	.1MFD	High side to pin 7 (Grid) of 6BE6 (V1) Low side to chassis.	"	"	"	"	A3,A4	"
3.	.1MFD	"	1620KC	"	"	"	A5	"
4.	50MMF	High side to external antenna terminal. Low side to chassis.	1400KC	"	Tune for max. output	"	A6	Set pointer to 1400KC calibration on dial. Adjust A6 for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

When beginning step 8, unsolder the lead from pin 7 (Grid) of 6BE6 (V1). to band switch. Solder a 100KΩ resistor, temporary grid load, from pin 7 of 6BE6 to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V2). Low side to chassis.	10.7MC (Unmod.)	FM (extreme counter clockwise)	Tuning gang fully open	DC Probe to Point (A) Common to chassis.	A7	Adjust for maximum deflection.
6.	.01MFD	"	"	"	"	DC Probe to Point (B) Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 5 and 6.
7.	.01MFD	"	"	"	"	DC Probe to Point (A) Common to chassis.	A9	Adjust for maximum deflection. Repeat step 5.
8.	.01MFD	High side to pin 7 (Grid) of 6BE6 (V1). Low side to chassis. (See note above).	"	"	"	DC Probe to Point (A) Common to chassis.	A10, A11	Adjust for max. deflection. Remove 100KΩ resistors and replace lead from pin 7 of 6BE6 to band switch.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

When beginning step 6, unsolder lead from pin 7 (Grid) of 6BE6 (V1) to band switch. Solder a 100KΩ resistors, temporary grid load, from pin 7 of 6BE6 to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	.01MFD	High side to pin 1 (Grid) of 6BA6 (V2). Low side to chassis.	10.7MC (450KC Sweep)	FM	Tuning gang fully open	Vert.Amp. to Point (A) Low side to chassis.	A7,A9	Disconnect stabilizer cap. C2. Adjust A7 and A9 for maximum amplitude as per Fig 1.
6.	.01MFD	High side to pin 7 (Grid) of 6BE6 (V1). Low side to chassis. (See instructions above)	"	"	"	"	A10, A11	Adjust for max. amplitude and symmetry as per Fig 1.
7.	.01MFD	"	"	"	"	Vert.Amp. to Point (B) Low side to chassis.	A8	Reconnect stabilizer cap C2. Adjust A8 so crossover occurs at center of diagonal lines as per Fig 2. Slightly retouch A7 for max. amplitude and straightness of diagonal lines. Remove 100KΩ resistor and replace lead from pin 7 of 6BE6 to band switch.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
9.	300Ω carbon res.	High side to ungrounded dipole terminal thru 300Ω resistor.	108.4MC	FM	Tuning gang fully open	DC Probe to Point (A) Common to chassis.	A12	Adjust for maximum deflection.
10.	300Ω carbon res.	"	104.5MC	"	Tune for max. deflection.	"	A13	"

FIG. 1

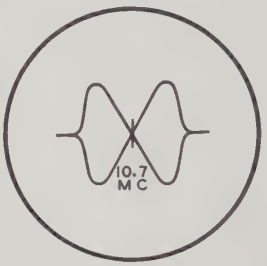
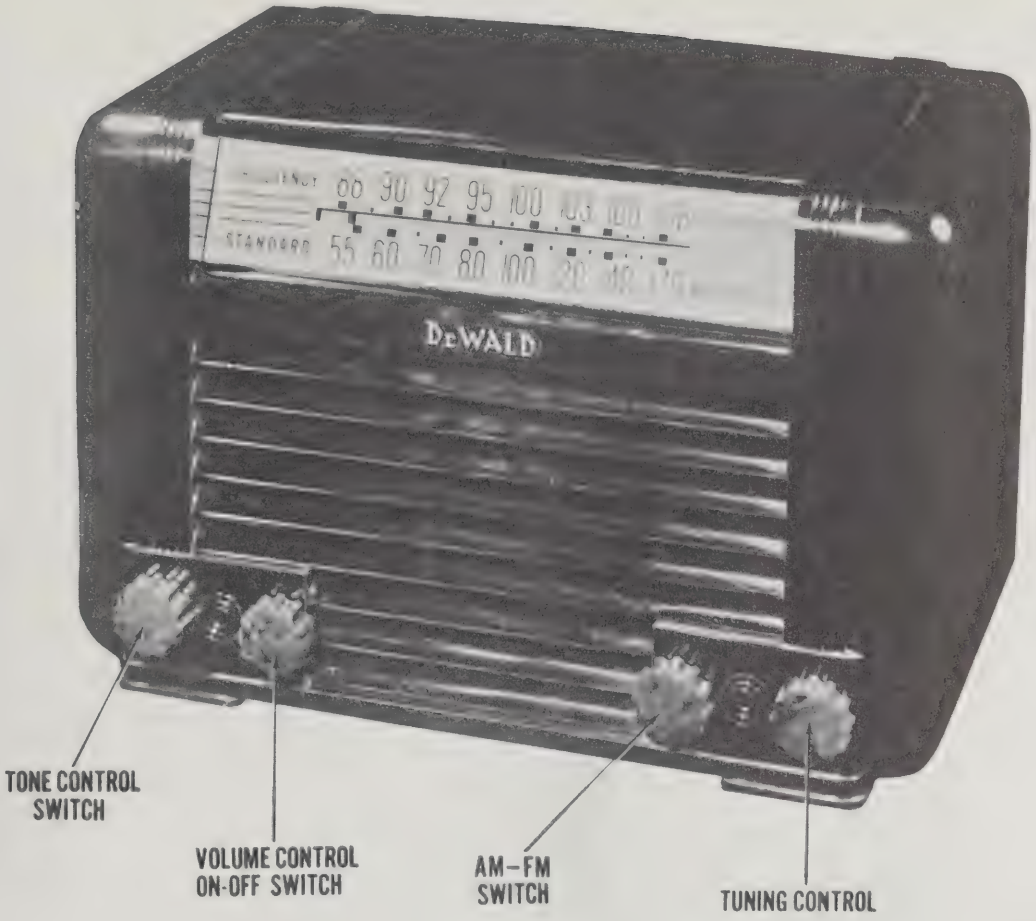


FIG. 2

DEWALD
MODEL C-800



DEWALD
MODEL C-800

DEWALD MODEL C-800

TRADE NAME	Dewald, Model C-800
MANUFACTURER	Dewald Radio Mfg. Co., 35-15 37th Ave. Long Island City, New York
TYPE SET	AC-DC Operated AM-FM Superheterodyne Receiver with Loop Antenna
TUBES(EIGHT)	Types 6BJ6 FM RF Amp., 12AT7 Converter, 6BJ6 1st IF Amp., 6BH6 FM 2nd IF Amp., 12AL5 Ratio Det., 12AT6 AM DET-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING: .28 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1700KC FREQ. MOD. 88-108MC

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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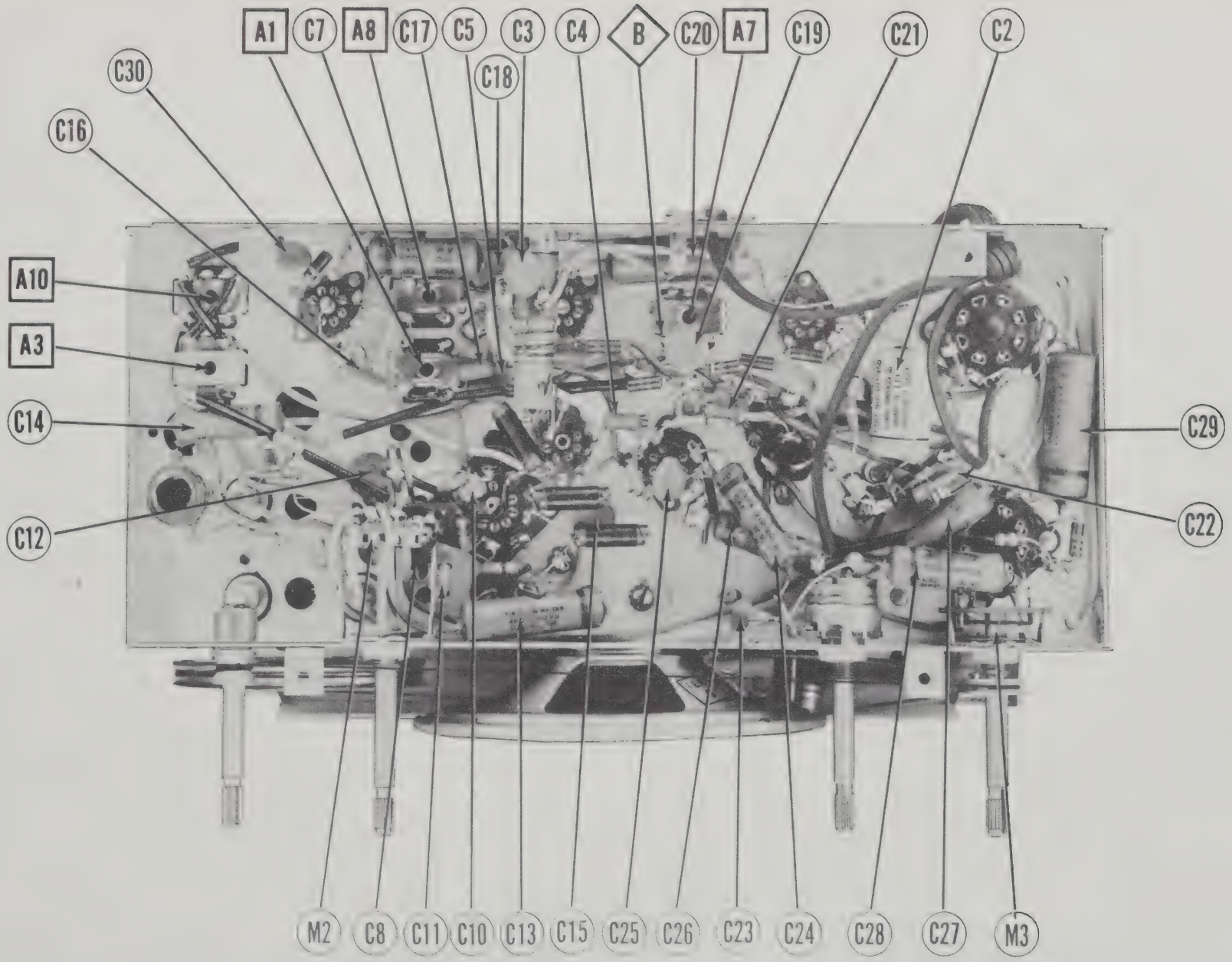
A1
C7
A8
C17
C5
C3
C4
B
C20
A7
C19
C21
C2
C30
C18
C16
A10
A3
C14
C12
C29
C22
M2
C8
C11
C10
C13
C15
C25
C26
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R24
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L3
R13
R10
R9
R11
R8
L7
R12
L6
R7
R4
R5
L4
L13
L14
R20
R21
R19
R1
R16
R22
R23

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	FM RF Amp.	6BJ6	6BJ6	7CM	
V2	Converter	12AT7	12AT7	9A	
V3	1st IF Amp.	6BJ6	6BJ6	7CM	
V4	FM 2nd IF Amp.	6BH6	6BH6	7CM	
V5	Ratio Det.	12AL5	12AL5	6BT	
V6	AM DET-AVC-AF	12AT6	12AT6	7BT	
V7	Power Output	35L6GT	35L6GT	7AC	
V8	Rectifier	35Z5GT	35Z5GT	6AD	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: DEWALD PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	80	150		AF888D*	UP84215		DY-8040	EL-340*	■ Filter
B	40	150		PRS25/25			20-150	TA-25	▲ Filter
C	25	25							Output Cath. Bypass
C2	4	50		PRS150/4	BR550		M-4-150	TVA-13	Stabilizing Cap.
C3	5000			1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AVC Filter
C4	100			1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Cath. Bypass
C5	5000			1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	RF Decoupling
C6	220			1468-0002	5W5T2	GP2K-200	MO.5-32	1FM-32	RF Coupling
C7	.02	400		P488-02	GT4S2		ST-4-02	TM-12	Ext. Ant. Isolation
C8	100			1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Decoupling
C9	5			1468-000005	5W5V5	NP0K-5	MO.5-55	MS-55	Osc. Coupling
C10	47			1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	Osc. Grid Cap.
C11	52			1469-00005	5R5Q5	NP0M-50	MOS.5-45	MS-45	Fixed Padder
C12	5000			1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	RF Bypass
C13	.05	400		P488-05	GT4S5		ST-4-05	TM-15	AVC Filter
C14	.01	400		P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	" "
C15	5000			1467-005	1D5D5	GP2M-005	MW.5-21	1FM-25	RF Fil. Bypass
C16	5000			1467-005	1D5D5	GP2M-005	MW.5-21	1FM-25	1st IF Decoupling
C17	100			1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Diode RF Filter
C18	100	500		1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	2nd IF Cath. Bypass
C19	5000			1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Decoupling
C20	.05	400		P488-05	GT4S5		ST-4-05	TM-15	2nd IF Fil. Bypass
C21	220			1468-0002	5W5T2	GP2K-200	MO.5-32	1FM-32	Diode Load Cap.
C22	1500			1467-0015	1W5D15	GP2L-0015	MW.5-215	1FM-215	De-emphasis
C23	100			1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Bypass
C24	.005	400		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Audio Coupling
C25	5000			1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AM DET-AF Fil. Bypass
C26	.01	400		P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C27	.002	600		P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	Tone Compensation
C28	.02	400		P488-02	GT4S2		ST-4-02	TM-12	Output Plate Bypass
C29	.05	600		P688-05	GT6S5		ST-6-05	TM-15	Line Filter
C30	5000			1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Conv. Plate Decoup.

* Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: DEWALD PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½		Q13-133	AM-60-Z	Volume Control
B	Shaft			Not Req.	KSS-3	Attach to R1A Per Instructions
C	Switch			76-1	SW-A	" " " " "

PARTS LIST AND DESCRIPTIONS (Continued)

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: DEWALD PART No.	REPLACEMENT DATA:	NOTES
M1	Bayonet	6-8V	.15	Brown			Type #47

MISCELLANEOUS

ITEM No.	PART NAME	DEWALD PART No.	NOTES
M2	Switch		Band
M3	Switch		Tone
M4	2 Gang Var. Cap.		(25-465MMF, 25-193MMF)

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	DEWALD PART No.	IRC PART No.	
R2	68Ω	½		BW-½-68	RF Cathode
R3	220Ω	½		BW-½-220	RF Decoupling
R4	10Ω	½			Parasitic Supp.
R5	1 Meg.	½		BTS-1 Meg.	Conv. Grid
R6	220Ω	½		BW-½-220	Conv. Plate Decoupling
R7	22KΩ	½		BTS-22K	Osc. Grid
R8	470KΩ	½		BTS-470K	AVC Network
R9	68Ω	½		BW-½-68	1st IF Cathode
R10	220Ω	½		BW-½-220	1st IF Decoupling
R11	22KΩ	½		BTS-22K	Diode Filter
R12	2.2 Meg.	½		BTS-2.2 Meg.	AVC Network
R13	68Ω	½		BW-½-68	2nd FM IF Cathode
R14	220Ω	½		BW-½-220	2nd FM IF Decoupling
R15	47Ω	½			Balancing
R16	39KΩ	½		BTS-39K	De-emphasis
R17	22KΩ	½		BTS-22K	Ratio Det. Diode Load
R18	270KΩ	½		BTS-270K	AVC Network
R19	8.2 Meg.	½		BTS-8.2 Meg.	Delayed AVC
R20	10 Meg.	½		BTS-10 Meg.	AF Grid
R21	470KΩ	½		BTS-470K	AF Plate
R22	470KΩ	½		BTS-470K	Output Grid
R23	150Ω	1		BW-½-150	Output Cathode
R24	15Ω	1			Rect. Ballast
R25	510Ω	½		BTS-470	Ratio Det. Filament.

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		DEWALD PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2500Ω	3.5Ω	270Ω	.9Ω		A-3876	RO-2	A-2928	

SPEAKER

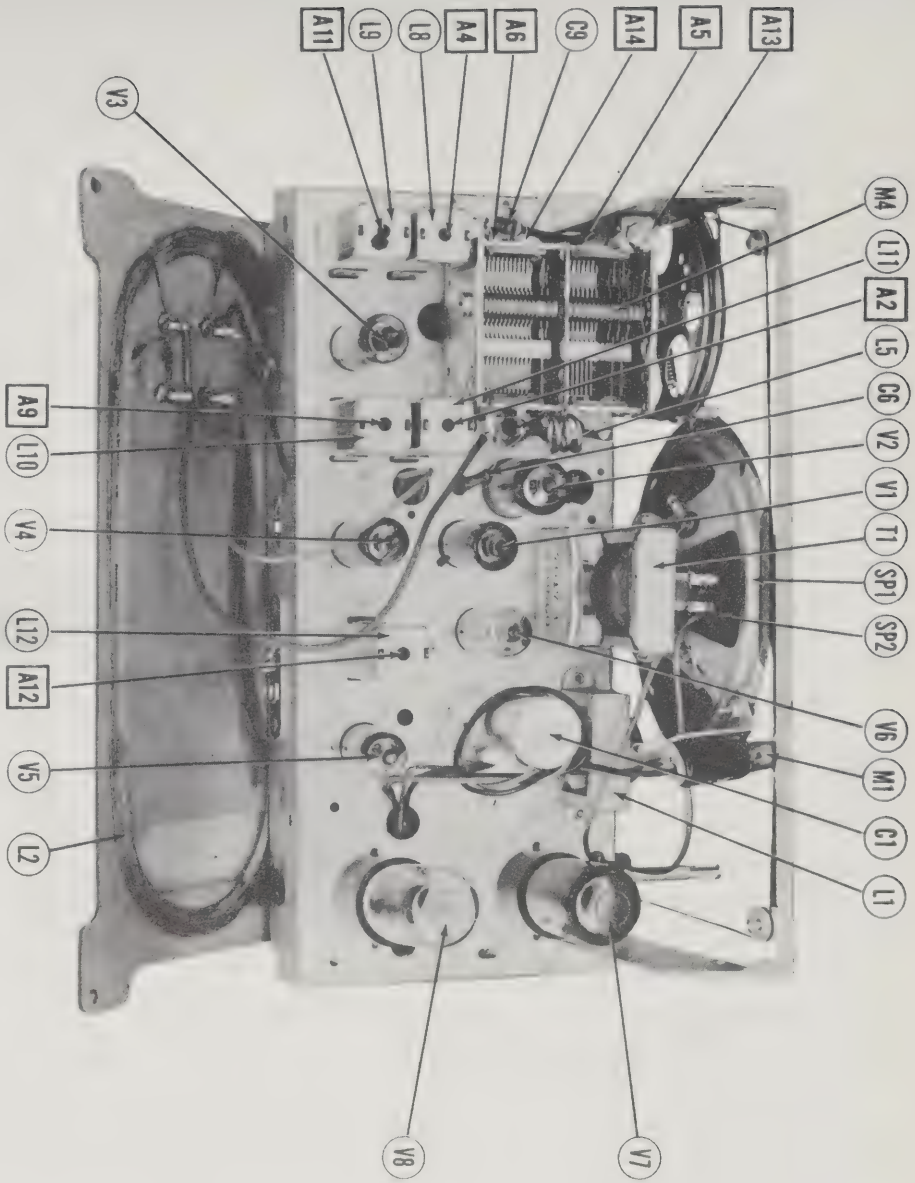
ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			DEWALD PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-107†		† Drill and tap magnet frame.
SP1	PM	3.5Ω		MOD.P5-V	5A1	
	CONE DIA.	V. C. DIA.				
SP2	4 7/8"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	DEWALD PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
L1	.038A	200Ω	5 Henries		C-1080 †	R-650 †	C-2977 †	† Drill one new mounting hole.

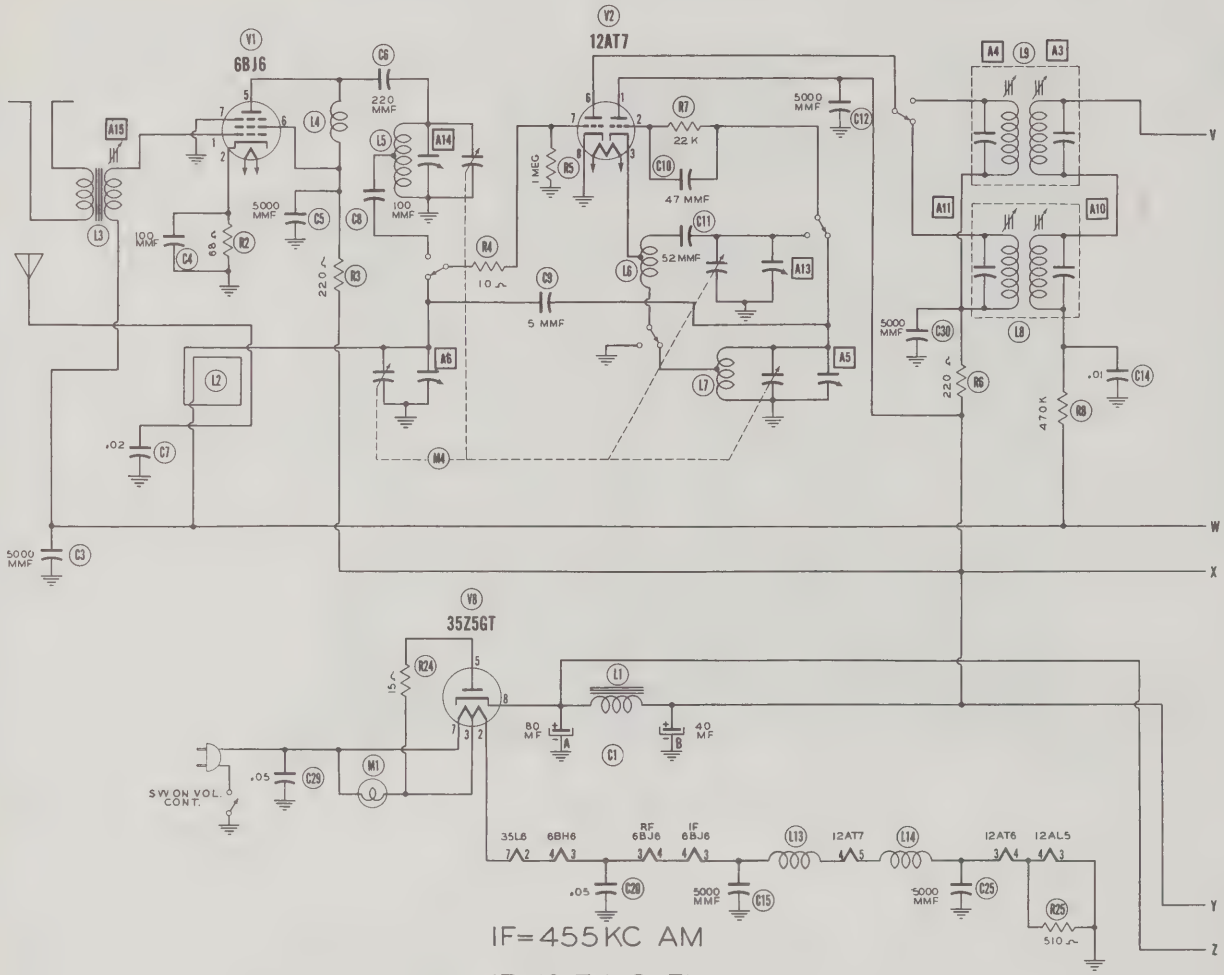
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	DEWALD PART No.	MEISSNER PART No.	
L2	Loop Ant.	2.5Ω				
L3	FM Ant.	0Ω				
L4	FM RF Chk.	.2Ω				
L5	FM RF Coil	0Ω				
L6	FM Osc.	0Ω				
L7	AM Osc.	4.5Ω				
L8	FM 1st IF	.8Ω	.8Ω			
L9	AM 1st IF	19Ω	19Ω			
L10	FM 2nd IF	.8Ω	.8Ω			
L11	AM 2nd IF	16Ω	16Ω			
L12	Ratio Det.	1.5Ω	1Ω			
L13	Fil. Choke	.2Ω				
L14	Fil. Choke	.2Ω				



DATE 9/49 4917-7 SET #69 FOLDER 7

DEWALD
MODEL C-800
PAGE 5



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	-3.4VDC	.7VDC	34VAC	40VAC	105VDC	105VDC	0V		
V2	12AT7	112VDC	3.4VDC	0V	34VAC	20VAC	112VDC	-1VDC	0V	28VAC
†	12AT7	112VDC	§-2VDC	0V	34VAC	20VAC	112VDC	-1VDC	0V	28VAC
V3	6BJ6	-.9VDC	.2VDC	46VAC	40VAC	112VDC	112VDC	0V		
†V4	6BH6	0V	.5VDC	46VAC	52VAC	105VDC	105VDC	0V		
†V5	12AL5	0V	-.1VDC	V	7VAC	-1.3VDC	0V	.1VDC		
V6	12AT6	-.4VDC	V	20VAC	7VAC	-.6VDC	-.3VDC	45VDC		
V7	35L6GT	0V	52VAC	105VDC	110VDC	0V	0V	86VAC	7VDC	
V8	35Z5GT	V	117VAC	113VAC	0V	110VAC	0V	86VAC	117VDC	

§TAKEN WITH VACUUM TUBE VOLTMETER.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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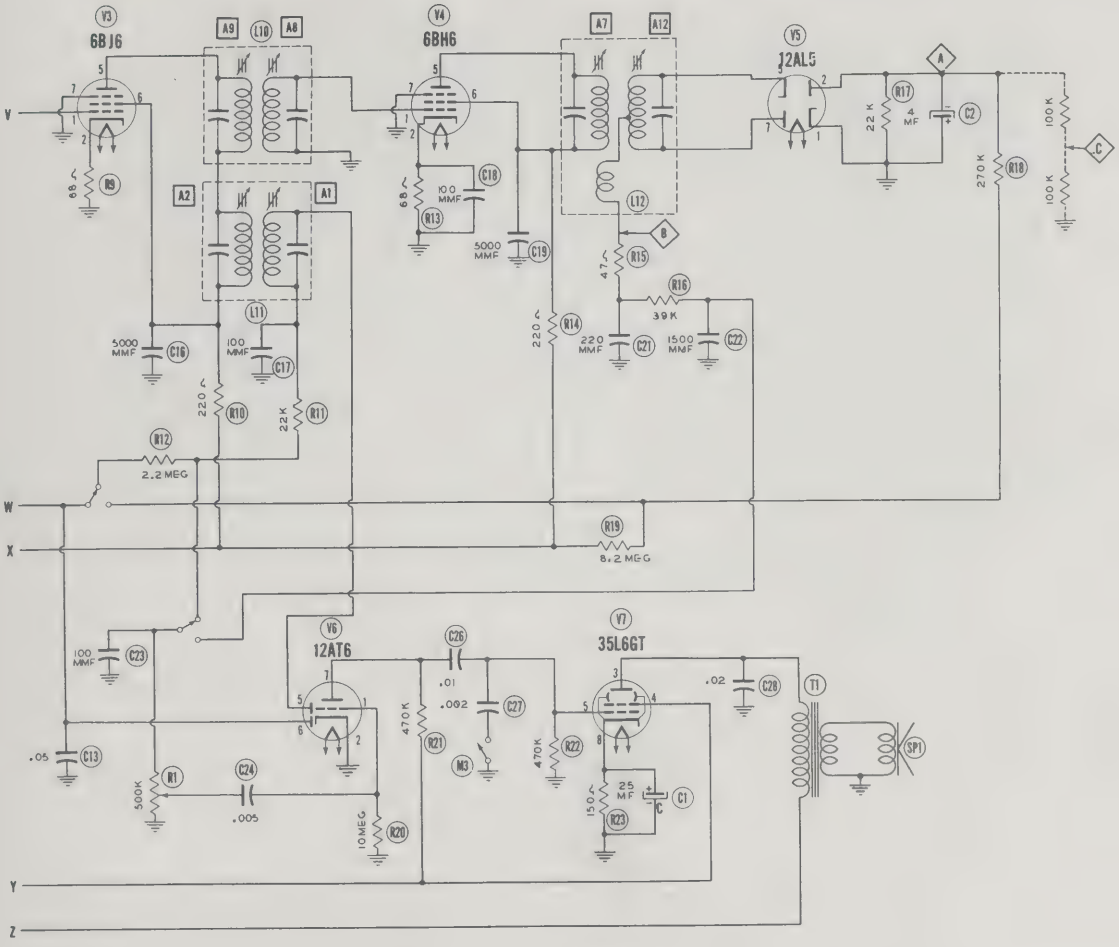

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
‡V1	6BJ6	3.6Ω	[illegible]	[illegible]	44Ω	†400Ω	†400Ω	0Ω	[illegible]	[illegible]
V2A	12AT7	†150Ω	22KΩ	1Ω	38Ω	25Ω	†400Ω	750Ω	[illegible]	38Ω
V2B	12AT7	†150Ω	22KΩ	[illegible]	38Ω	25Ω	†400Ω	1 Meg.	1Ω	38Ω
V3	6BJ6	1.5 Meg.	68Ω	[illegible]	44Ω	†400Ω	†400Ω	0Ω	[illegible]	[illegible]
‡V4	6BH6	.8Ω	68Ω	[illegible]	0Ω	†400Ω	†400Ω	0Ω	[illegible]	[illegible]
‡V5	12AL5	0Ω	22KΩ	0Ω	12Ω	500KΩ	0Ω	100KΩ	[illegible]	[illegible]
V6	12AT6	10 Meg.	0Ω	0Ω	12Ω	400KΩ	4 Meg.	†470KΩ	[illegible]	[illegible]
V7	35L6GT	0Ω	57Ω	1.5Ω	†150Ω	500KΩ	Inf.	90Ω	1.5Ω	[illegible]
V8	35Z5GT	Inf.	108Ω	104Ω	Inf.	110Ω	Inf.	90Ω	90Ω	[illegible]

† Measured From Pin 8 Of V8.

‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (Grid) of 12AT7 (V2). Low side to chassis.	455KC	AM (CCW)	Tuning gang fully open	Across voice coil	A1,A2, A3,A4	Adjust for max. output. If isolation transformer is not used reduce dummy antenna to .001MFD to reduce hum modulation.
2.	.1MFD	High side to ext. AM antenna lead. Low side to chassis.	1700KC	"	"	"	A5	Adjust for max. output.
3.	.1MFD	"	1500KC	"	Tune for max. signal	"	A6	" " " "

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (±1%) resistors in series from pin 2 of 12AL5 (V5) to chassis. The junction of these two resistors is point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	.01MFD	High side to pin 7 (Grid) of 12AT7 (V2). Low side to chassis.	10.7MC	FM (CW)	Tuning gang fully open	DC Probe thru 250KΩ res. to Point (A) Common to chassis.	A7,A8, A9,A10, A11	Adjust for max. deflection.
5.	.01MFD	"	"	"	"	DC Probe to Point (B) Common to Point (C)	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
4.	.01MFD	High side to pin 7 (Grid) of 12AT7 (V2). Low side to chassis.	10.7MC (450KC Sweep)	FM	Point of non interference	Vert.Amp. to Point (A) Low side to chassis.	A7,A8, A9,A10, A11	Disconnect stabilizer cap (C2). Adjust for max. amplitude and symmetry as per Fig 1.
5.	.01MFD	"	"	"	"	Vert.Amp. to Point (B) Low side to chassis.	A12	Reconnect stabilizer cap (C2). Adjust so crossover point occurs at center of pattern as per Fig 2. Slightly retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Two 150Ω carbon res.	Across FM antenna terminals with 150Ω resistor in each generator lead.	108MC	FM	Tuning gang fully open	DC Probe thru 250KΩ to Point (A) Common to chassis.	A13	Adjust for maximum deflection.
7.	"	"	105MC	"	Tune for max. signal	"	A14	"
8.	"	"	94MC	"	94MC	"	A15	"

FIG. 1

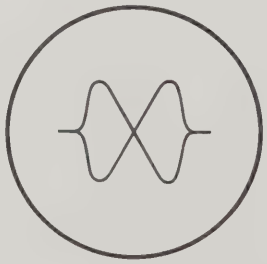
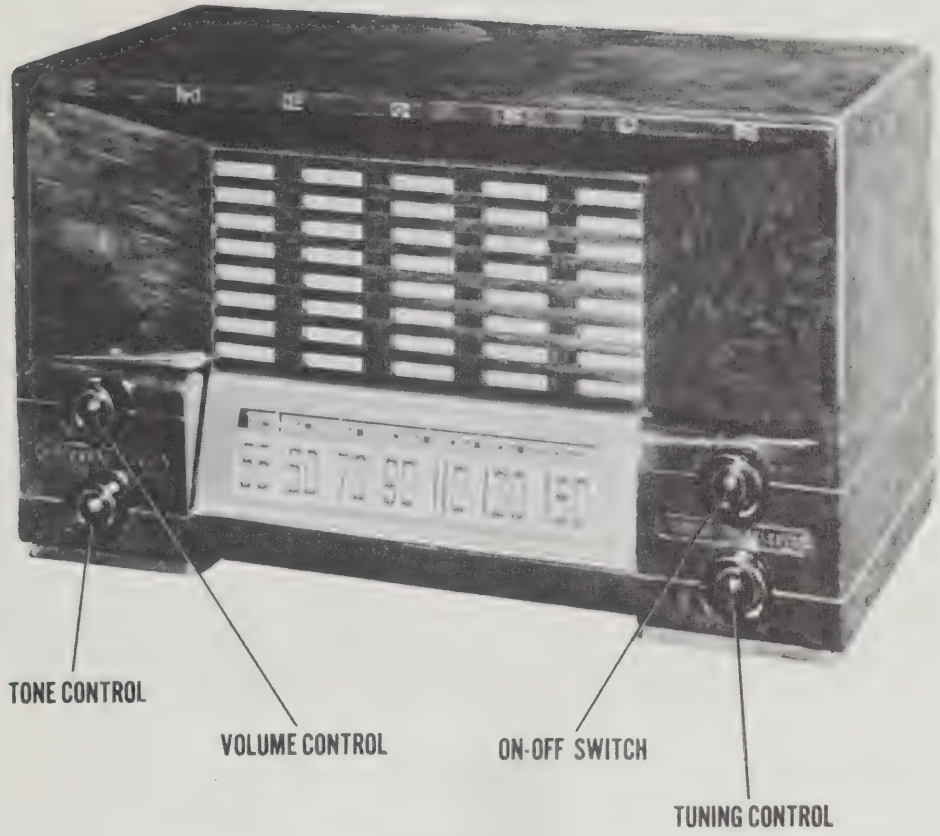


FIG. 2



EMERSON
MODELS 599, 601

EMERSON
MODELS 599, 601

EMERSON MODEL 599

TRADE NAME	Emerson, Models 599, 601 (Ch. 120075B)
MANUFACTURER	Emerson Radio & Phonograph Corp., 111 8th Ave., New York 11, N.Y.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna.
TUBES (EIGHT)	Types 6SS7 RF Amp., 12SA7 Converter, 6SS7 IF Amp., 12SQ7 DET-AVC-AF, 12SQ7 Phase Inverter, (2) 35L6GT Power Output, 117Z6GT Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING .43 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not connect a .1 MFD. cap. in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	0.1MFD	High side to Pin 8 (grid) of 12SA7 (V2). Low side to B-.	455KC	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
2.	0.1MFD	High side to external antenna lead. Low side to B-.	"	"	"	A5	Adjust for minimum output.
3.	200MMF	"	1620KC	"	"	A6	Adjust for maximum output.
4.	200MMF	"	1450KC	Tune for maximum output.	"	A7	Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

EMERSON MODEL 599

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: EMERSON PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6SS7	6SS7	8N	
V2	Converter	12SA7	12SA7	8R	
V3	IF Amp.	6SS7	6SS7	8N	
V4	DET-AVC-AF	12SQ7	12SQ7	8Q	
V5	Phase Inv.	12SQ7	12SQ7	8Q	
V6	Power Output	35L6GT	35L6GT	7AC	
V7	Power Output	35L6GT	35L6GT	7AC	
V8	Rectifier	117Z6GT	117Z6GT	7Q	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	925103	PRSA150/50 -50	EDL5515		DSB-2x50 -150	TA-505	Filter Red
B	50	150		PRS150/12	BR1215		M-10-150	UT-121	Filter Green
C	10	150							Decoupling Brown
C2	10	25	925119	PRS25/10	BR102A		M-10-25	TA-10	Phase Inv. Cath. Bypass
C3	212		928104	1468-0002	5W5T2	GP2K-200	MO.5-32	1FM-32	RF Coupling
C4	.1	200	920060	P288-1	GT2P1		ST-2-1	TM-1	AVC Filter Note
C5	100		928013	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Diode RF Filter
C6	100		928013	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Diode RF Filter
C7	.002	600	920010	P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	Audio Coupling
C8	100		928013	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	AF Plate Bypass
C9	.002	600	920010	P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	Tone Compensation
C10	.2	200	920050	P488-22	GT4P2		ST-4-2	TC-2	Decoupling
C11	.01	400	920090	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C12	.01	400	920090	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C13	.005	600	920230	P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Output Plate Bypass
C14	.1	200	920040	P288-1	GT2P1		ST-2-1	72P52	Line Isolation
C15	.05	400	920030	P488-05	GT4S5		ST-4-05	TM-15	Line Filter

Note. Some Models Use .05MFD In This Application.

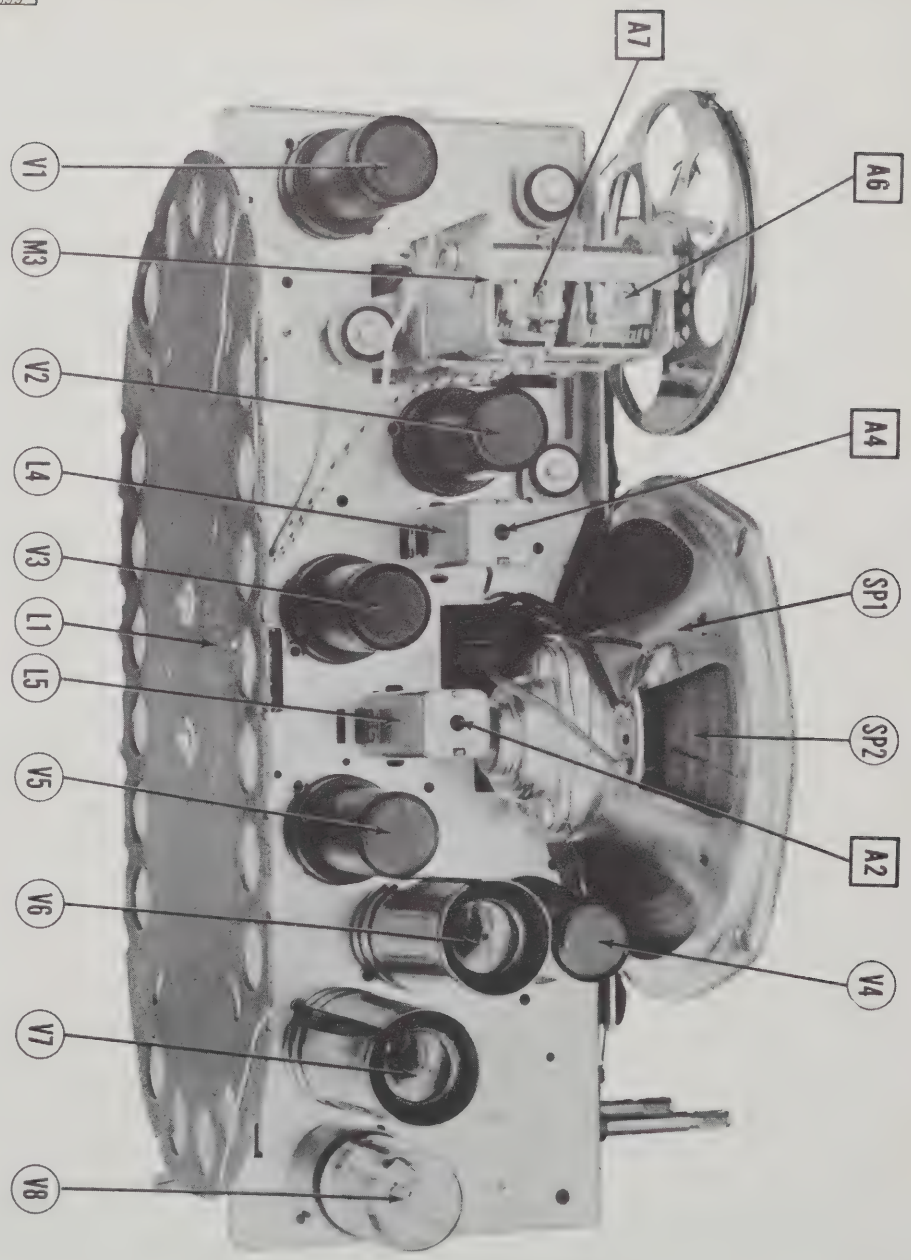
CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	390051	Q11-133	AM-58-S	Volume control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A per instructions
R2A	400KΩ	½	390061	Q11-133	AM-58-S	Tone control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R2A per instructions

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: EMERSON PART No.	IRC PART No.	IDENTIFICATION CODES
R3	10KΩ	½	340730	BTS-10K	RF Plate
R4	220KΩ	½	351050	BTS-220K	Conv. Grid
R5	15 Meg.	½	351490	BTS-15 Meg.	AVC Network
R6	22KΩ	½	340810	BTS-22K	Osc. Grid
R7	4700Ω	½	340650	BTS-4700	Screen Dropping
R8	47KΩ	½	340890	BTS-47K	Diode Filter
R9	3.3 Meg.	½	351330	BTS-3.3 Meg.	AVC Network
R10	15 Meg.	½	351490	BTS-15 Meg.	AF Grid
R11	470KΩ	½	351130	BTS-470K	AF Plate
R12	15KΩ	½	340770	BTS-15K	Phase Inv. Cathode
R13	12KΩ	½	330750	BTS-12K-5%	Phase Inv. Grid 5%
R14	470KΩ	½	351130	BTS-470K	Phase Inv. Plate
R15	470KΩ	½	351130	BTS-470K	Output Grid
R16	470KΩ	½	351130	BTS-470K	Output Grid
R17	100Ω	1	370250	BW-1-100	Output Cathode
R18	15KΩ	½	340770	BTS-15K	Decoupling
R19	1000Ω	1	770490	BW-1-1000	Filter
R20	820Ω	5	394038	AB-800	Voltage Dropping Wire Wound
R21	15Ω	½	340050		Rect. Ballast
R22	220KΩ	½	351050	BTS-220K	Isolation

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		EMERSON PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	4600Ω CT	3.5Ω	200Ω CT	.4Ω	734035	A-3856	RO-301	A-2900	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V.C. IMP.	EMERSON PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.5Ω	180041			
	CONE DIA.	V.C. DIA.				
SP2	5-3/4"	3/4"				

R F COILS

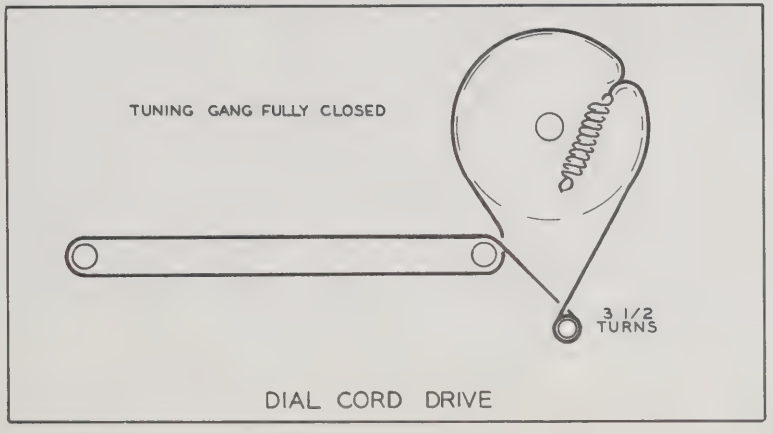
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	EMERSON PART No.	MEISSNER PART No.	
L1	Loop Ant.	3.2Ω		700032		
L2	Wave Trap	65Ω		708060		
L3	Osc.Coil	6.5Ω		716023	14-1060†	† Add 50MMF from high side of tuning cap to Osc. Grid.
L4	Input IF	18Ω	18Ω	720033	16-6678	
L5	Output IF	18Ω	18Ω	720033	16-6678	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					EMERSON PART No.		
M1	Bayonet	115VAC			807003		115-125V 10W

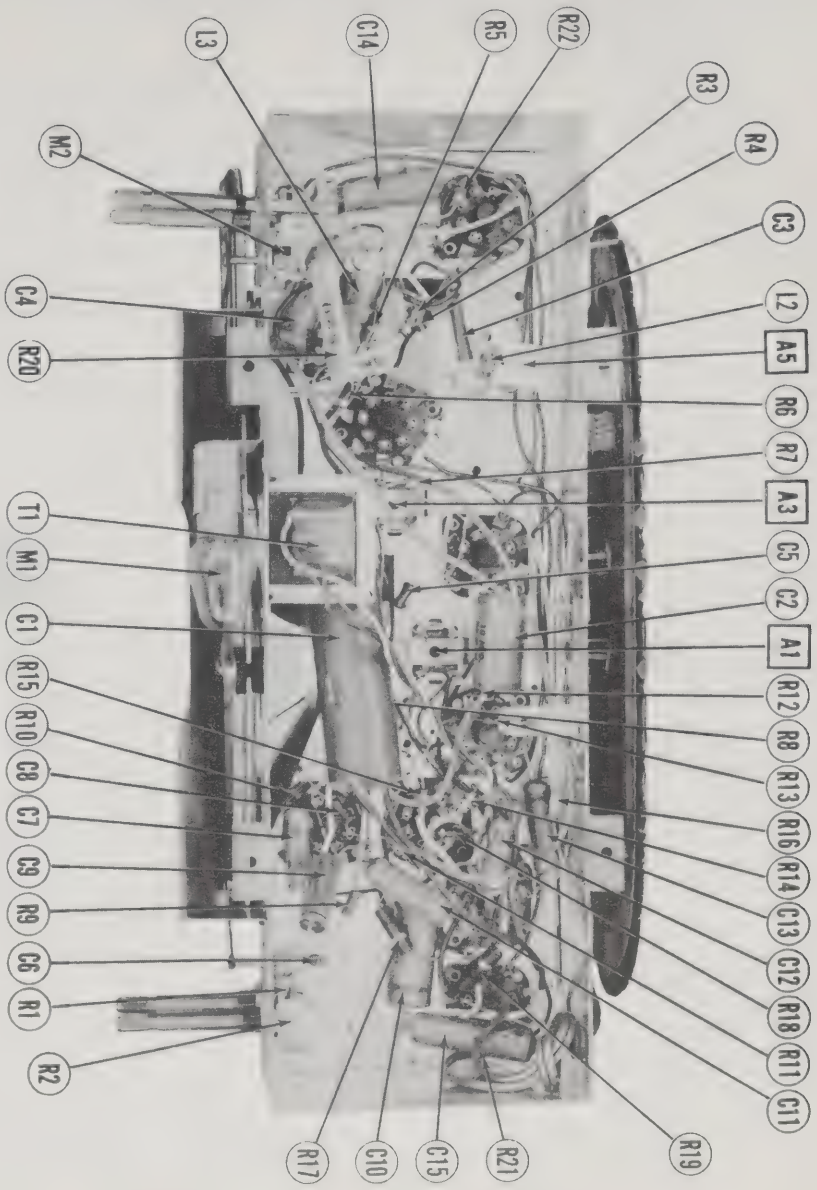
MISCELLANEOUS

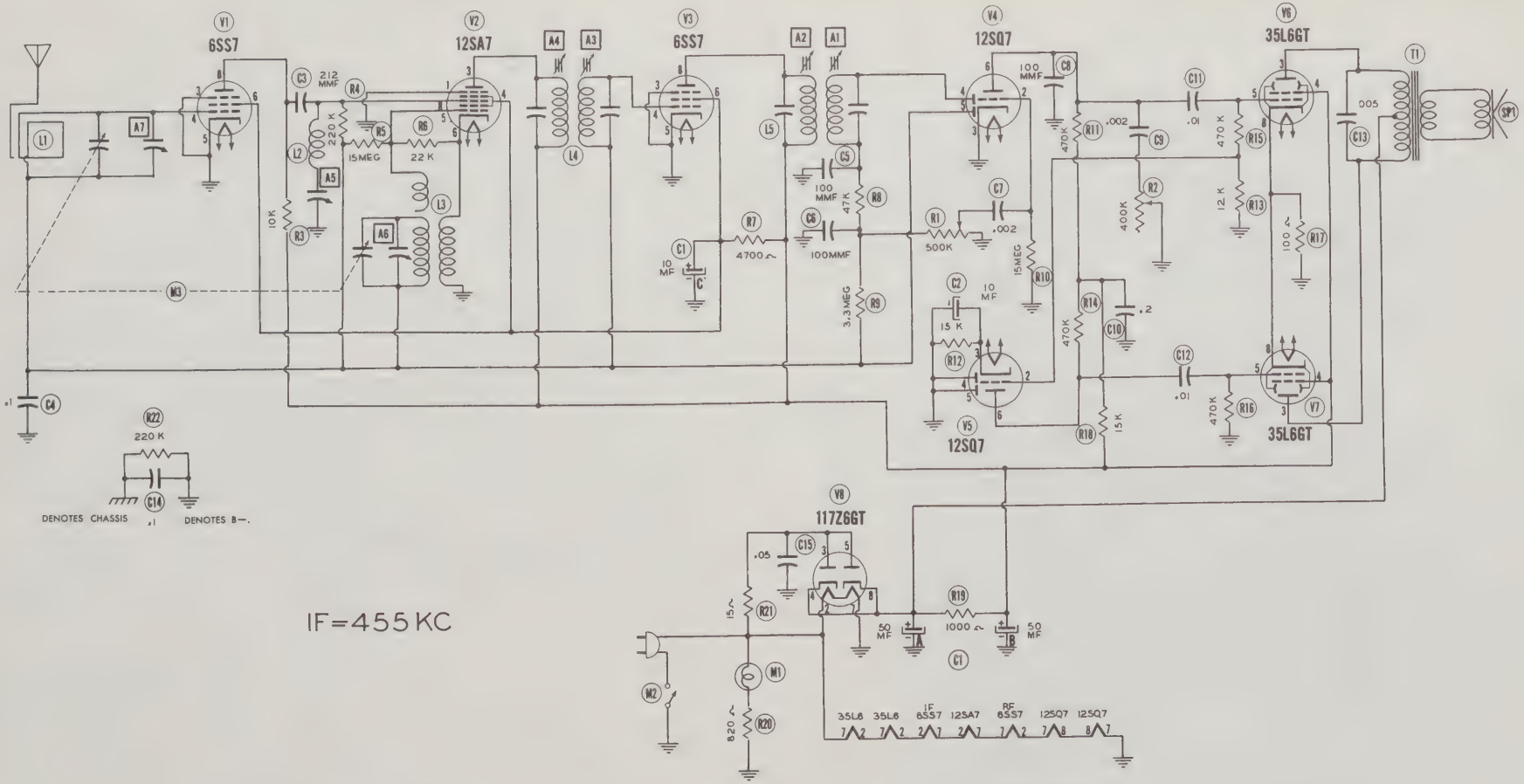
ITEM No.	PART NAME	EMERSON PART No.	NOTES
M2	Switch	510031	On-Off
M3	2 Gang Var. Cap.	900036	(22-466MMF, 18-197MMF)
	Cabinet	140216	Model 599
	Cabinet	140221	Model 601
	Knob	460470	
	Dial Crystal	520075	Model 599
	Dial Crystal	520091	Model 601
	Dial Pointer	525037	



DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SS7	0V	24VAC	0V	-.5VDC	0V	60VAC	30VAC	35VAC
V 2	12SA7	0V	44VAC	100VAC	60VAC	$\frac{4-8}{7DC}$.4	0V	30VAC	-.4VDC
V 3	6SS7	0V	50VAC	0V	-.6VDC	0V	60VDC	44VAC	100VDC
V 4	12SQ7	0V	-.7VDC	0V	-.3VDC	-.6VDC	55VDC	0Ω	12VAC
V 5	12SQ7	0V	0V	1.1VDC	0V	0V	55VDC	24VAC	12VAC
V 6	35L6GT	0V	50VAC	125VDC	100VDC	0V	100VDC	80VAC	7VDC
V 7	35L6GT	0V	80VAC	125VDC	100VDC	0V	0V	117VAC	7VDC
V 8	117Z6GT	0V	117VAC	115VAC	127VDC	115VAC	0V	0V	127VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6SS7	220KΩ	24Ω	0Ω	4 Meg.	0Ω	†5.5KΩ	30Ω	†11KΩ
V 2	12SA7	220KΩ	42Ω	†1000Ω	†5.5KΩ	22KΩ	.1Ω	30Ω	4 Meg.
V 3	6SS7	220KΩ	48Ω	0Ω	4 Meg.	0Ω	†5.5KΩ	42Ω	†1000Ω
V 4	12SQ7	220KΩ	15 Meg.	0Ω	550KΩ	4 Meg.	†500KΩ	0Ω	12Ω
V 5	12SQ7	220KΩ	12KΩ	15KΩ	0Ω	0Ω	†500KΩ	24Ω	12Ω
V 6	35L6GT	220KΩ	48Ω	†90Ω	†1000Ω	480KΩ	†16KΩ	75Ω	110Ω
V 7	35L6GT	220KΩ	75Ω	†110Ω	†1000Ω	470KΩ	Inf.	86Ω	110Ω
V 8	117Z6GT	Inf.	86Ω	95Ω	70KΩ	95Ω	0Ω	0Ω	70KΩ

† Measured From Pin 8 Of V8.

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4917-8

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

GENERAL ELECTRIC
MODEL 814

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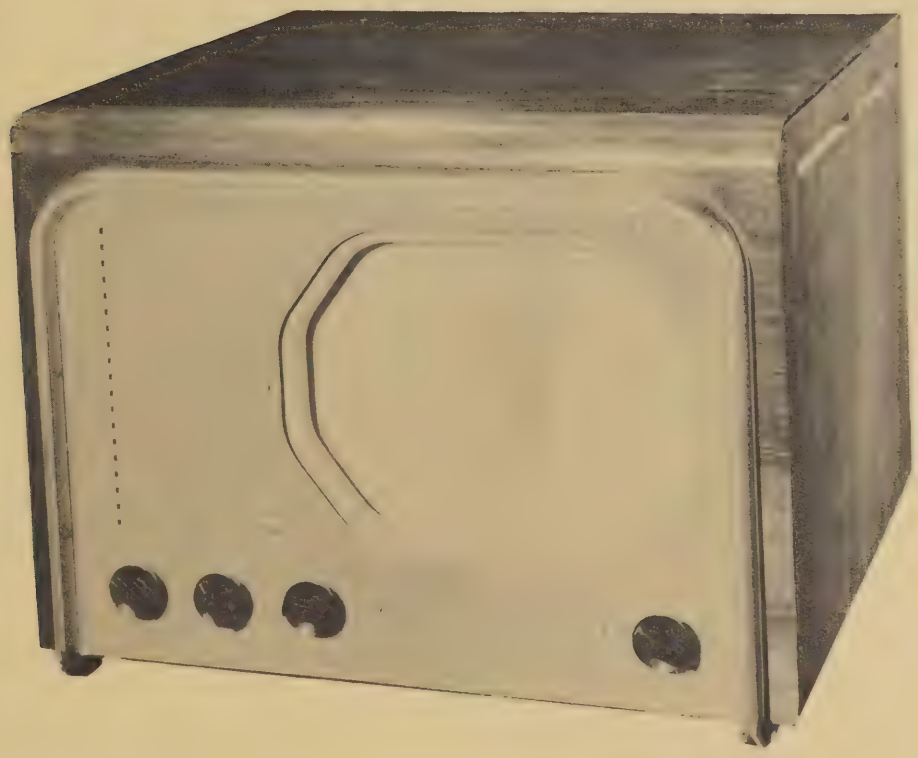

GENERAL ELECTRIC
MODEL 814

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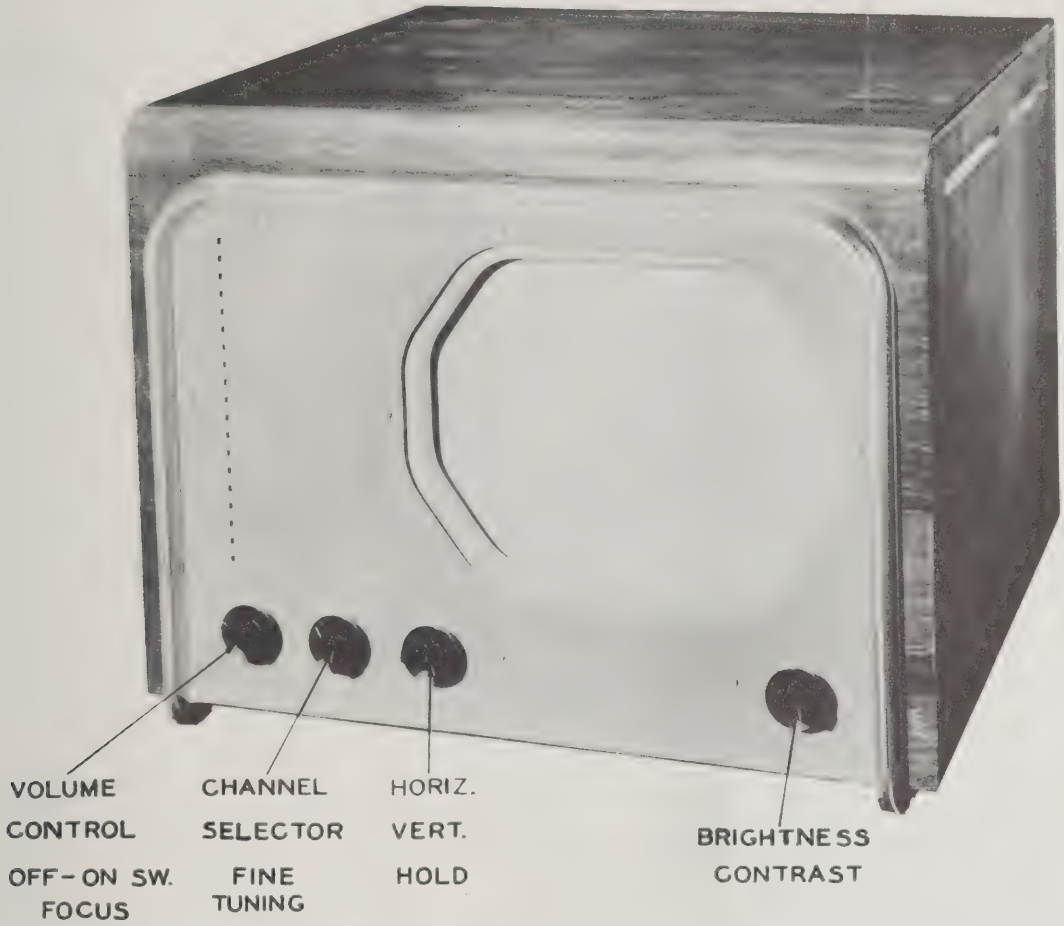

GENERAL ELECTRIC
MODEL 814

TRADE NAME	General Electric Model 814
MANUFACTURER	General Electric Co., Electronics Dept., Electronic Park, Syracuse, New York
TYPE SET	Television Receiver
TUBES	Twenty-Two
POWER SUPPLY	117 Volts, 60 Cycles AC — RATING: 2.0 Amps @ 117 Volts
TUNING RANGE—	Channels 2 through 13

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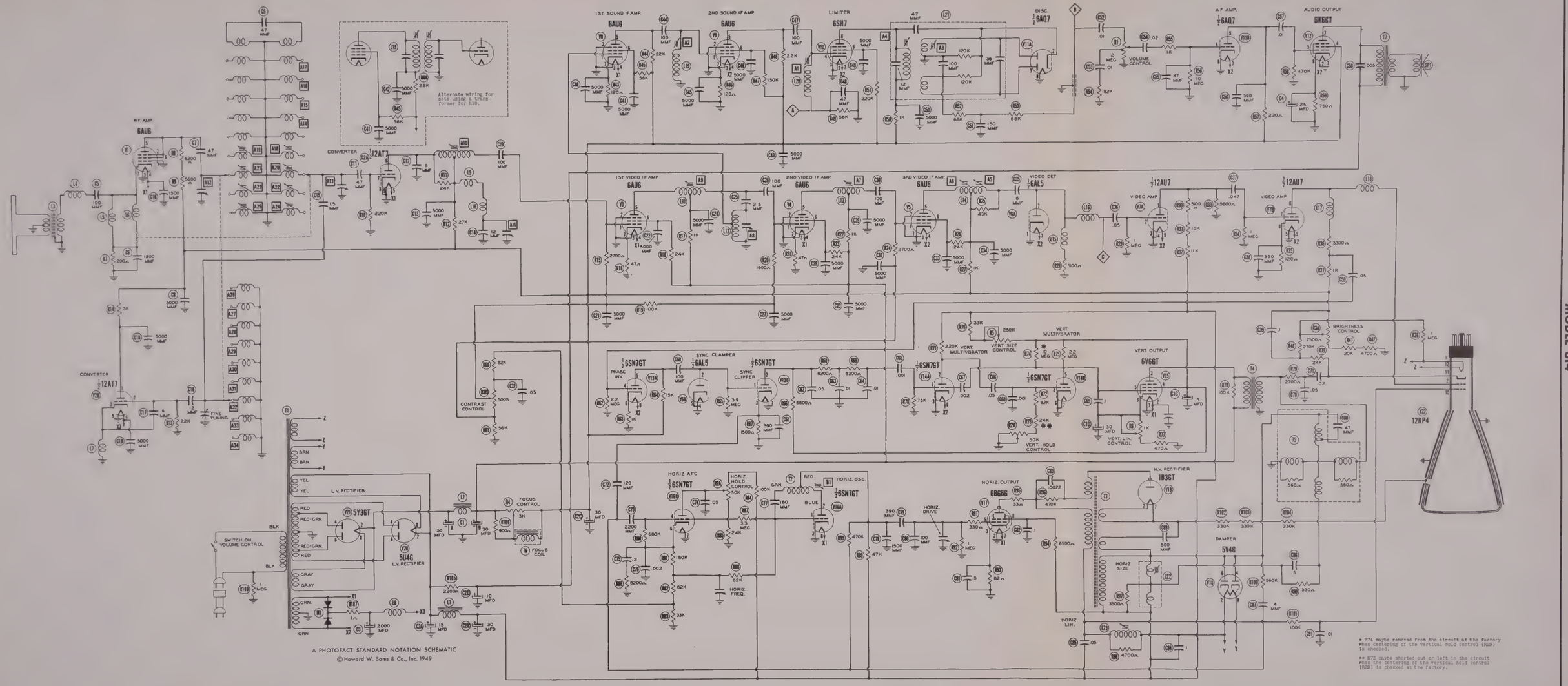
DATE 9/49 4917-9 SET #69 FOLDER #9


GENERAL ELECTRIC
MODEL 814
1ST SOUND IF AMP
6AU6
2ND SOUND IF AMP
6AU6
LIMITER
6SH7
DISC.
½6AQ7
A F AMP.
½6AQ7
AUDIO OUTPUT
6K6GT
RF AMP
6AU6
CONVERTER
12AT7
1ST VIDEO IF AMP
6AU6
2ND VIDEO IF AMP
6AU6
3RD VIDEO IF AMP
6AU6
VIDEO DET
½6AL5
½12AU7
VIDEO AMP
½12AU7
VIDEO AMP
CONVERTER
12AT7
FINE TUNING
CONTRAST CONTROL
PHASE INV.
½6SN7GT
SYNC CLAMPER
½6AL5
SYNC CLIPPER
½6SN7GT
VERT. MULTIVBRATOR
½6SN7GT
VERT. SIZE CONTROL
VERT. MULTIVBRATOR
½6SN7GT
VERT OUTPUT
6V6GT
BRIGHTNESS CONTROL
12KP4
HORIZ. AFC
½6SN7GT
HORIZ. HOLD CONTROL
HORIZ. FREQ.
HORIZ. OSC.
½6SN7GT
HORIZ. DRIVE
HORIZ. OUTPUT
6BG6G
H.V. RECTIFIER
1B3GT
HORIZ. SIZE
HORIZ. LIN.
DAMPER
5V4G
VOLUME CONTROL
SWITCH ON VOLUME CONTROL
L.V. RECTIFIER
5Y3GT
L.V. RECTIFIER
5U4G
FOCUS CONTROL
FOCUS COIL
VERT. MULTIVIBRATOR
VERT SIZE CONTROL
VERT. HOLD CONTROL
VERT. LIN. CONTROL
Alternate wiring for sets using a transformer for L10.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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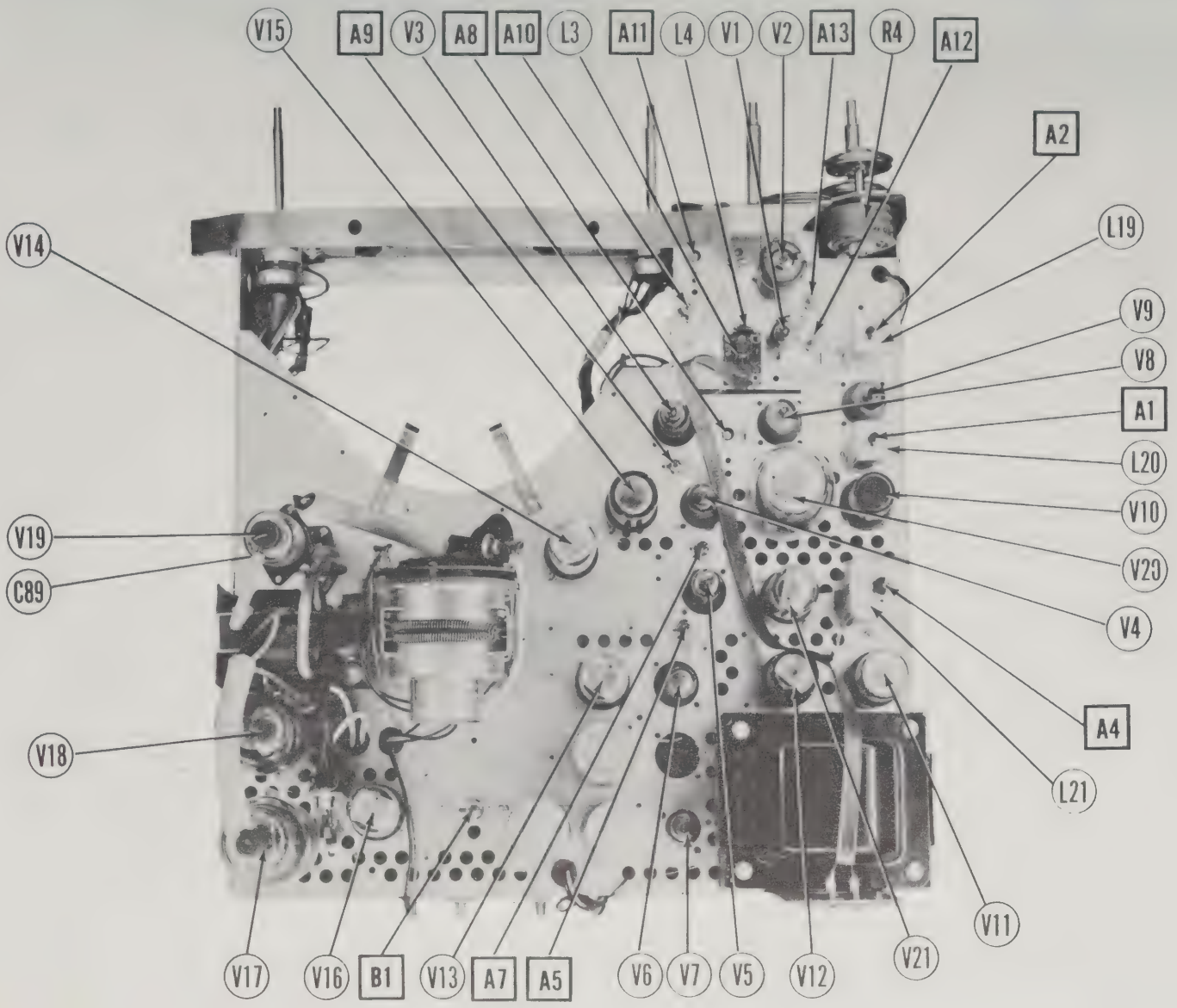
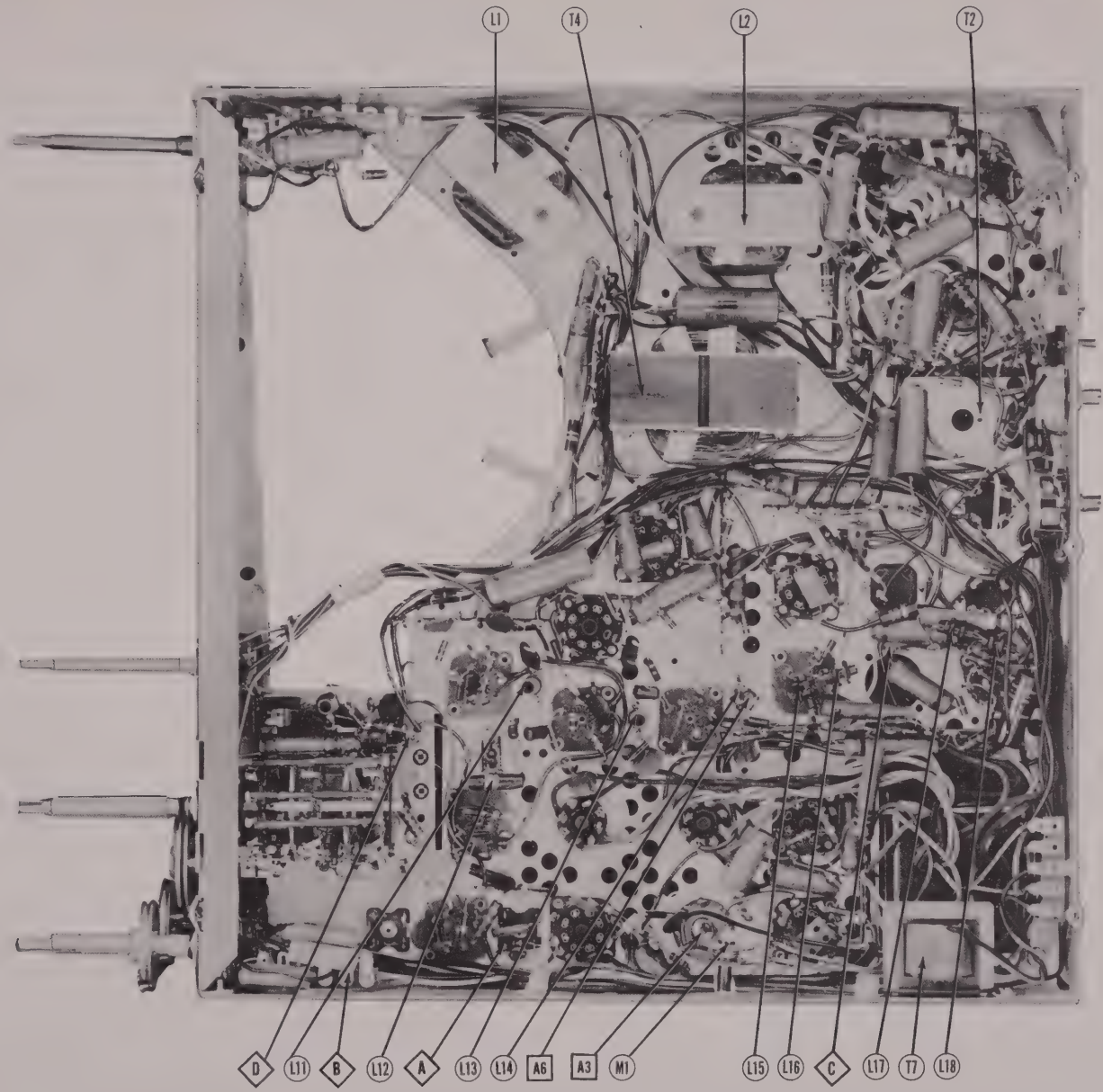
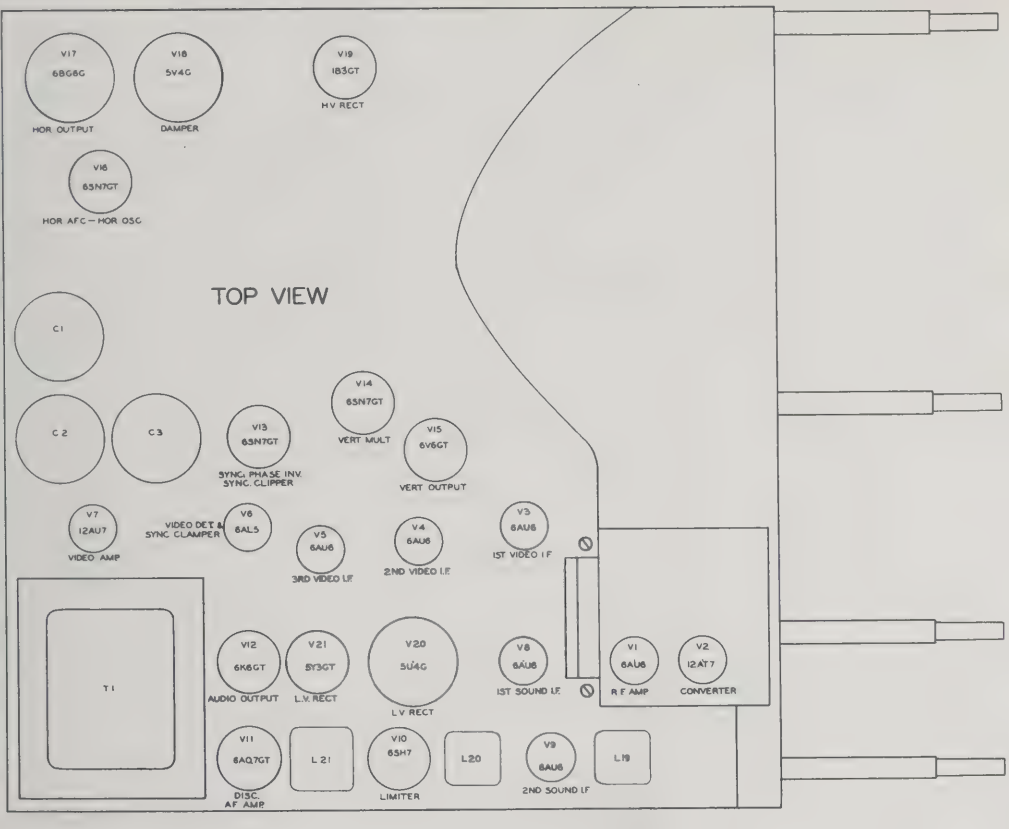
* R74 maybe removed from the circuit at the factory when centering of the vertical hold control (R28) is checked.
** R73 maybe shorted out or left in the circuit when the centering of the vertical hold control (R28) is checked at the factory.

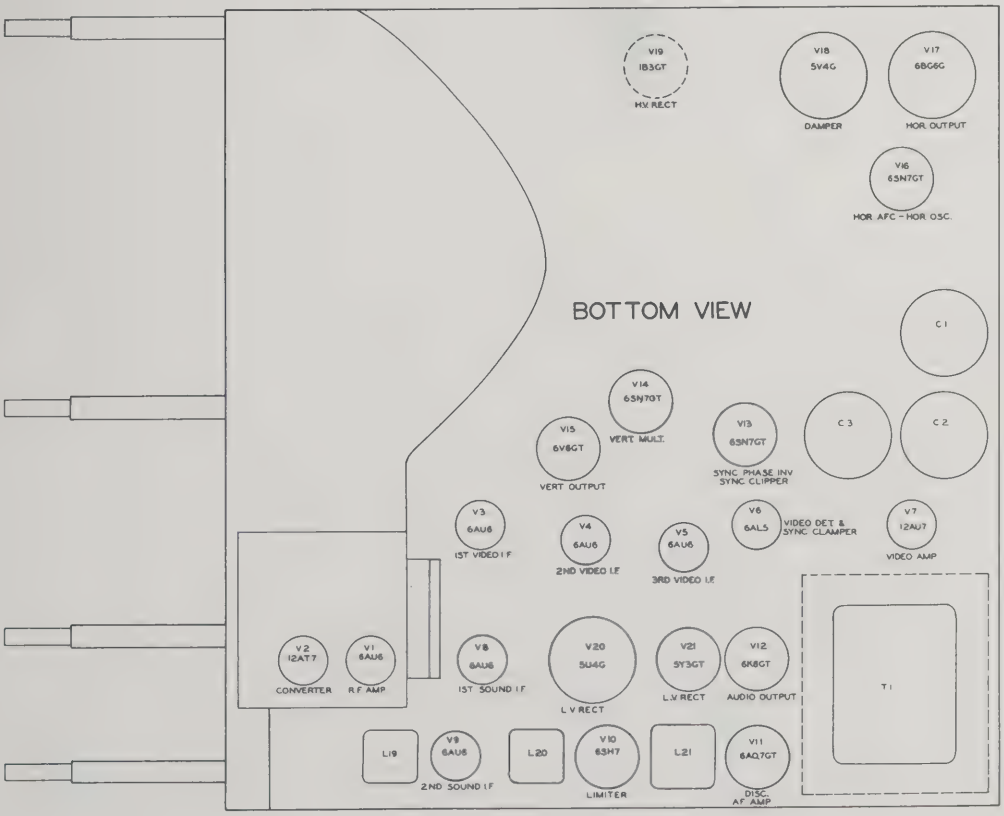


CHASSIS-TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

SOUND IF ALIGNMENT

High voltage may be disabled during alignment by removing V16.
Keep signal generator output low enough to give a 3/4 volt maximum peak reading.
Contrast control should be set to give -4 volt bias reading.
The signal generator lead should be terminated with a resistor equal to the impedance of the generator then connected with as short a lead as possible through a 500 MMF capacitor. Connect ground lead to chassis at the closest possible point.
When aligning the Video IF, the tube preceding the one to which signal is applied should be removed. If this is not done, the previous coil will act as a trap and cause considerable change in the response pattern.
If the response curve is peaked at the low frequency end and can not be corrected by the slug, try changing the 6AU6 into which the signal is fed. Abnormally high plate capacity can cause this difficulty.
Use insulated alignment tool for adjustments.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1	500 MMF.	Pin #1 (grid) of 6AU6 (V9).	21.8MC 1MC sweep	21.8MC	4	High side to Point Ⓐ through 100KΩ resistor. Low side to chassis.	A1	Adjust for maximum amplitude with marker at center of peak. See Fig. 1.
2	500 MMF.	Pin #1 (grid) of 6AU6 (V8).	"	"	"	"	A2	" (See note below).
3	500 MMF.	"	"	21.8MC (400 ∿ Mod.)	"	High side to Point Ⓑ through 10KΩ resistor. Low side to chassis.	A3	Adjust for symmetrical S curve. At proper frequency the modulation at the edges of the pattern will disappear. See Fig. 2.
4	500 MMF.	"	"	"	"	"	A4	Adjust for maximum amplitude and symmetry of S curve. Repeat Steps 3 and 4 for best results.

NOTE: In some productions, L19 was changed to a transformer. Adjust both primary and secondary for maximum amplitude and symmetry.

VIDEO IF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5	500 MMF	Pin #1 (grid) of 6AU6 (V5).	25MC 10MC sweep	22.9MC 26.3MC	4	High side to Point Ⓒ through 10KΩ resistor. Low side to chassis.	A5,A6	Adjust for maximum amplitude with pattern as shown in Fig. 3. Remove V4 during this adjustment.
6	500 MMF.	Pin #1 (grid) of 6AU6 (V4).	"	22.9MC 25.55MC 26.3MC	"	"	A7	Adjust for maximum amplitude with pattern as shown in Fig. 4. Remove V3 during this adjustment.
7	500 MMF.	Pin #1 (grid) of 6AU6 (V3).	Not used	21.8MC 400 ∿ (Mod.)	"	"	A8	Adjust for minimum amplitude.
8	500 MMF.	"	25MC 10MC sweep	22.9MC 23.4MC 25.55MC 26.3MC	"	"	A9	Remove V2 during this step. Adjust for maximum amplitude with pattern as shown in Fig. 5.
9	500 MMF.	Pin #7 (grid) of 12AT7.	"	"	"	"	A10	Turn A11 to minimum. Adjust for maximum amplitude with pattern as shown in Fig. 5.
10	500 MMF	"	"	"	"	"	A11	Adjust for 26.3MC at half amplitude as shown in Fig. 6.

RF ALIGNMENT

Terminate signal generator lead with a carbon resistor equal to generator impedance, then connect to antenna terminals through two equal resistances to make total equal approximately 300 ohms.
DO NOT ATTEMPT TO ALIGN THE RF SECTION UNLESS IT IS DEFINITELY KNOWN TO BE NECESSARY. Usually alignment will not be necessary unless a coil has been damaged or replaced. Since separate coils are used for each switch position it should be necessary to re-align only the deflective channel. Adjustment of A12 and A13 may be necessary when tubes are replaced in the RF Tuner.
Adjustments are made by changing the inductance of the individual coils. Coupling is fixed except for channels #2 and #3. Coupling on channel #2 may be varied by sliding the copper rings on the coil form. Coupling on channel #3 may be adjusted if necessary by moving turns at the insides of the coils. Frequency adjustment is made in each case by expanding or compressing the coils. The upper three switch positions each cover two channels and must be sufficiently broad. The fine tuning control should be at center position during oscillator alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
11	Resistive (See above)	Antenna terminals.	85MC 15MC sweep	83.25MC 87.75MC	6	High side to Point Ⓓ. Low side to chassis. Disconnect C18.	A12,A13	Adjust for maximum amplitude and flat response. See Fig. 7.
12	"	"	79MC 15MC sweep	77.25MC 81.75MC	5	"	A14	"
13	"	"	69MC 15MC sweep	67.25MC 71.75MC	4	"	A15	"
14	"	"	63MC 15MC sweep	61.25MC 65.75MC	3	"	A16	"
15	"	"	57MC 15MC sweep	55.25MC 59.75MC	2	"	A17	Adjust for maximum. See Fig. 8.
16	"	"	177MC 15MC sweep	175.25MC 179.75MC	7	"	A18,A19	Adjust for maximum. See Fig. 7. Keep slugs approximately even.
17	"	"	186.5MC 25MC sweep	181.25MC 191.75MC	8-9	"	A20,A21	Adjust for maximum. See Fig. 9.
18	"	"	198.5MC 25MC sweep	193.25MC 203.75MC	10-11	"	A22,A23	"
19	"	"	210.5MC 25MC sweep	205.25MC 215.75MC	12-13	"	A24,A25	"

OSCILLATOR ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL		ADJUST	REMARKS
20	Resistive (see above)	Antenna Terminals	59.75MC (Modulated)	2		A26	Set volume control and tuning control at mid-position. Use sound output as indicator. Squeeze or spread turns to adjust.
21	"	"	65.75MC (Modulated)	3		A27	"
22	"	"	71.75MC (Modulated)	4		A28	"
23	"	"	81.75MC (Modulated)	5		A29	"
24	"	"	87.75MC (Modulated)	6		A30	"
25	"	"	179.75MC (Modulated)	7		A31	"
26	"	"	188.75MC (Modulated)	8-9		A32	"
27	"	"	200.75MC (Modulated)	10-11		A33	"
28	"	"	212.75 (Modulated)	12-13		A34	"

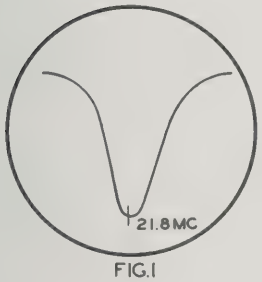


FIG.1

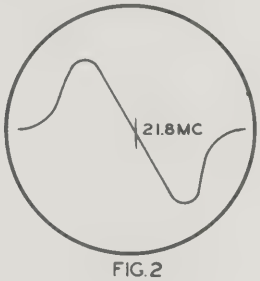


FIG.2

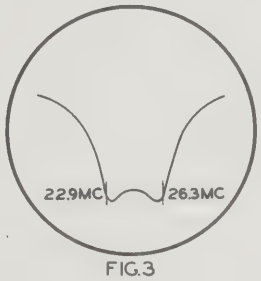


FIG.3

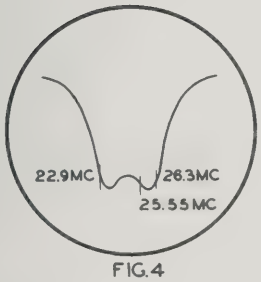


FIG.4

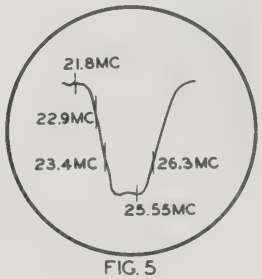


FIG. 5

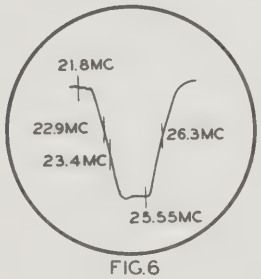


FIG.6

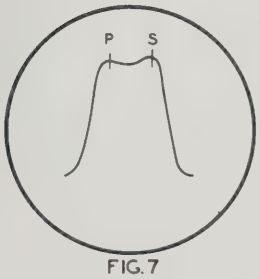


FIG. 7

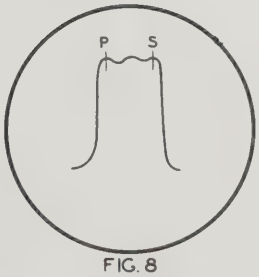


FIG. 8

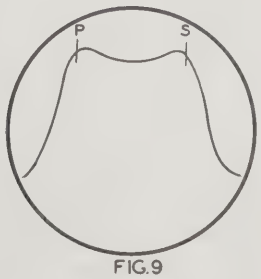


FIG.9

HORIZONTAL FREQUENCY ADJUSTMENT

The horizontal frequency control is a coarse adjustment used to set the front panel horizontal hold control to obtain synchronization at approximately the center of its range. The core (B1) of the blocking oscillator transformer sets the natural frequency of the system.

Connect a VTVM to the junction of the contrast control and resistor R60. Tune in a television signal and adjust the front panel horizontal hold control to the center of its range. Alternately adjust the horizontal frequency control and slug B1 until synchronization is obtained with 12 volts indicated by the VTVM. The voltage must be within one volt of 12 volts at the correct adjustment.

The front panel horizontal hold control should cause the picture to fall out of synchronization at each end of its rotation.

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AU6	0V	150VDC	0V	6.3VAC	150VDC	150VDC	1.3VDC		
V 2	12AT7	225VDC	§-.3 VDC	0V	6.3VAC	6.3VDC	145VDC	-1.5VDC	0V	0V
V 3	6AU6	-6VDC	0V	0V	6.3VAC	260VDC	190VDC	-6VDC		
V 4	6AU6	-.6VDC	0V	0V	6.3VAC	260VDC	190VDC	.6VDC		
V 5	6AU6	-.8VDC	0V	0V	6.3VAC	220VDC	150VDC	0V		
V 6	6AL5	0V	-.6VDC	6.3VAC	0V	0V	0V	-8.9VDC		
V 7	12AU7	50VDC	-.4VDC	0V	0V	0V	170VDC	0V	1.6VDC	6.3VAC
V 8	6AU6	0V	0V	0V	6.3VAC	125VDC	110VDC	.8VDC		
V 9	6AU6	0V	0V	0V	6.3VAC	175VDC	65VDC	.4VDC		
V 10	6SH7	0V	0V	0V	-.3VDC	0V	45VDC	6.3VAC	230VDC	
V 11	6AQ7GT	0V	.3VDC	0V	-.4VDC	80VDC	0V	6.3VAC	0V	
V 12	6K6GT	0V	0V	320VDC	235VDC	0V	18VDC	6.3VAC	18VDC	
V 13	6SN7GT	-.7VDC	105VDC 245VDC	5.4VDC	0V	165VDC	5VDC	0V	6.3VAC	
V 14	6SN7GT	-.2VDC	25VDC	0V	-.8VDC	4.5VDC	0V	0V	6.3VAC	
V 15	6V6GT	0V	6.3VAC	265VDC	105VDC 250VDC	4.6VDC	-.9VDC	0V	8VDC 16VDC	
V 16	6SN7GT	-65VDC	145VDC	0V	-4.2VDC	45VDC	-27VDC	0V	6.3VAC	
V 17	6BG6G	0V	0V	8.4VDC	-5.2VDC	-5.2VDC	0V	6.3VAC	280VDC	*
V 18	5V4G	0V	450VDC	0V	355VDC	0V	355VDC	0V	450VDC	
V 19	1B3GT									
V 20	5U4G	0V	375VDC	0V	340VAC	0V	340VAC	0V	375VDC	
V 21	5Y3GT	0V	285VDC	0V	300VAC	0V	300VAC	0V	285VDC	
V 22	12KP4	◓195VDC	145VDC							

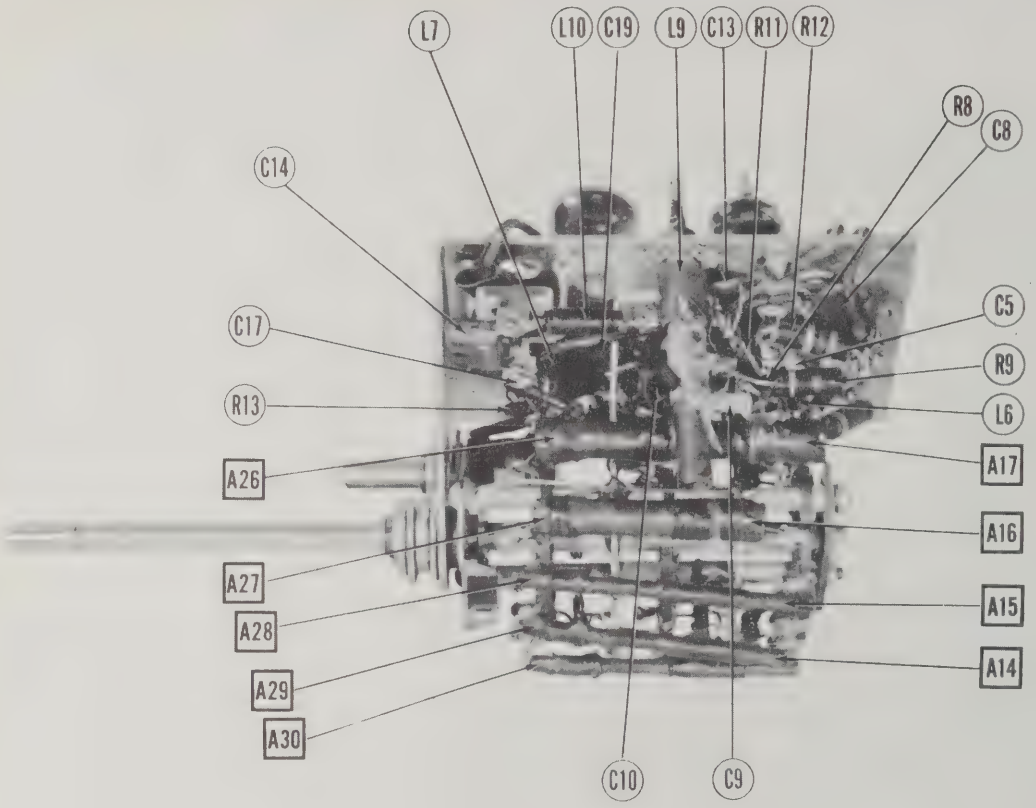
* Do Not Measure.
◓ 6.3VAC Measured Across Filament.
Note 1: Contrast Control Set At Maximum For These Readings.

RESISTANCE READINGS

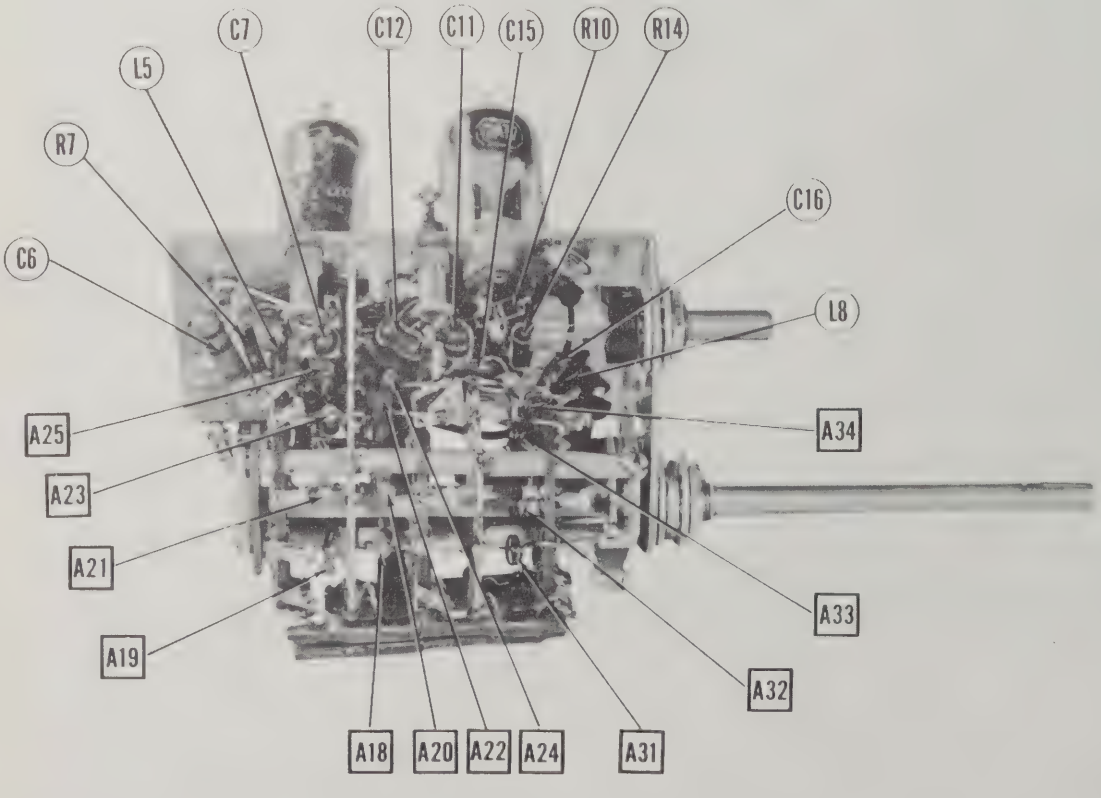
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6AU6	0Ω	#12.5KΩ	0Ω	.1Ω	#12.5KΩ	#12.5KΩ	200Ω		
V 2	12AT7	#4KΩ	22KΩ	0Ω	.1Ω	.1Ω	#27KΩ	220KΩ	0Ω	0Ω
V 3	6AU6	100KΩ	0Ω	0Ω	.1Ω	#1000Ω	#24KΩ	47Ω		
V 4	6AU6	200KΩ	0Ω	0Ω	.1Ω	#1000Ω	#24KΩ	47Ω		
V 5	6AU6	56KΩ	0Ω	0Ω	.1Ω	#2KΩ	#26KΩ	0Ω		
V 6	6AL5	0Ω	4 Meg.	.1Ω	0Ω	0Ω	0Ω	5KΩ		
V 7	12AU7	†23KΩ	1 Meg.	0Ω	0Ω	0Ω	#5KΩ	1 Meg.	120Ω	.1Ω
V 8	6AU6	0Ω	0Ω	0Ω	.1Ω	#23KΩ	#56KΩ	120Ω		
V 9	6AU6	0Ω	0Ω	0Ω	.1Ω	#23KΩ	#150KΩ	120Ω		
V 10	6SH7	0Ω	0Ω	0Ω	56KΩ	0Ω	#220KΩ	.1Ω	#2KΩ	
V 11	6AQ7GT	0Ω	120KΩ	240KΩ	10 Meg.	#220KΩ	0Ω	.1Ω	0Ω	
V 12	6K6GT	Inf.	0Ω	†3KΩ	#1000Ω	470KΩ	750Ω	.1Ω	750Ω	
V 13	6SN7GT	4 Meg.	†300KΩ †33KΩ	7KΩ	2.2 Meg	#15KΩ	1000Ω	0Ω	.1Ω	
V 14	6SN7GT	75KΩ	†220KΩ	0Ω	125KΩ	†2.2 Meg	0Ω	0Ω	.1Ω	
V 15	6V6GT	Inf.	.1Ω	#1000Ω	†300KΩ †33KΩ	†2.2 Meg	55KΩ	0Ω	1.5KΩ 500Ω	
V 16	6SN7GT	200KΩ	†47KΩ	0Ω	900KΩ	†40KΩ	300KΩ	0Ω	.1Ω	
V 17	6BG6G	Inf.	0Ω	82Ω	1 Meg.	1 Meg.	Inf.	.1Ω	†7KΩ	TOP CAP ♦100Ω
V 18	5V4G	Inf.	Inf.	Inf.	25KΩ	Inf.	25KΩ	Inf.	Inf.	
V 19	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP ♦470KΩ
V 20	5U4G	Inf.	25KΩ	Inf.	26Ω	Inf.	25Ω	Inf.	25KΩ	
V 21	5Y3GT	Inf.	30KΩ	Inf.	22Ω	Inf.	23Ω	Inf.	30KΩ	
V 22	12KP4	1 Meg.	#5KΩ	PIN 10 ♦100KΩ	PIN 11 300KΩ	PIN 12 1 Meg.				

† Measured From Pin 8 Of V20.
# Measured From Pin 8 Of V21.
♦ Measured From Pin 8 Of V18.

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



RF TUNER-RIGHT SIDE



RF TUNER-LEFT SIDE

Fold Out Here

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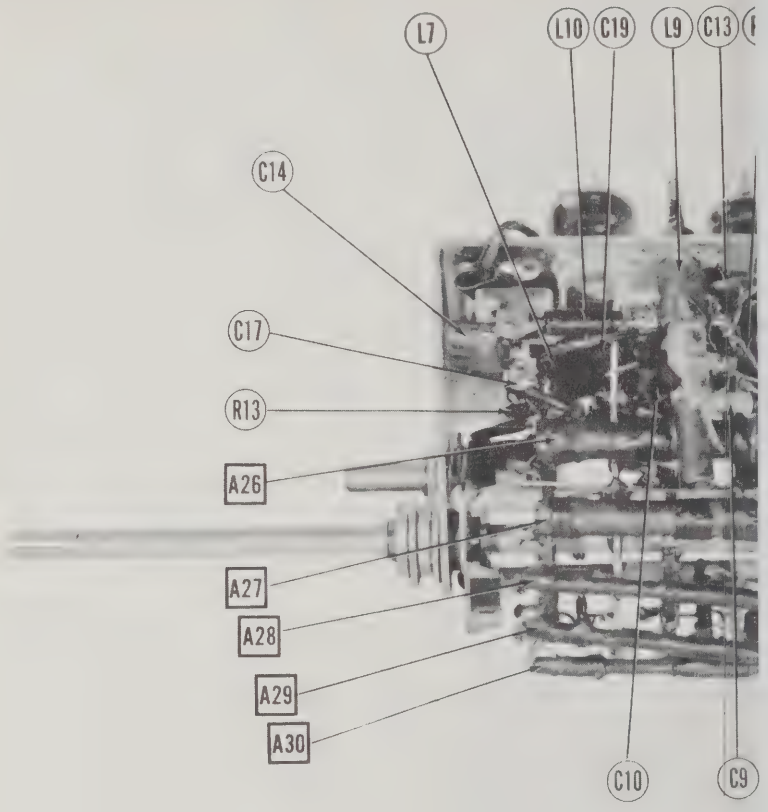
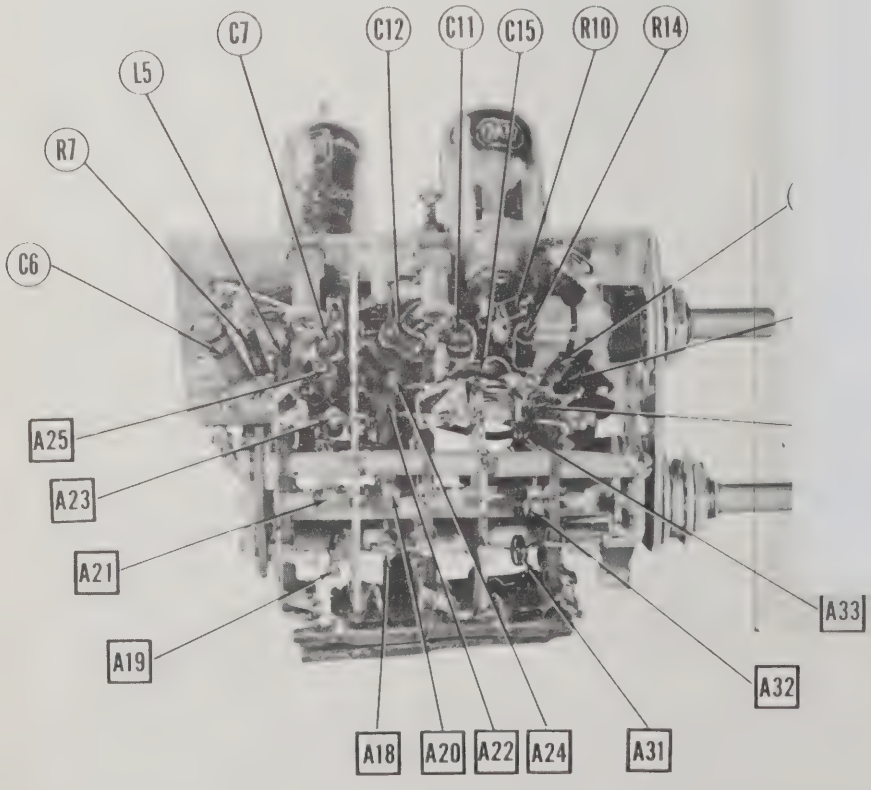
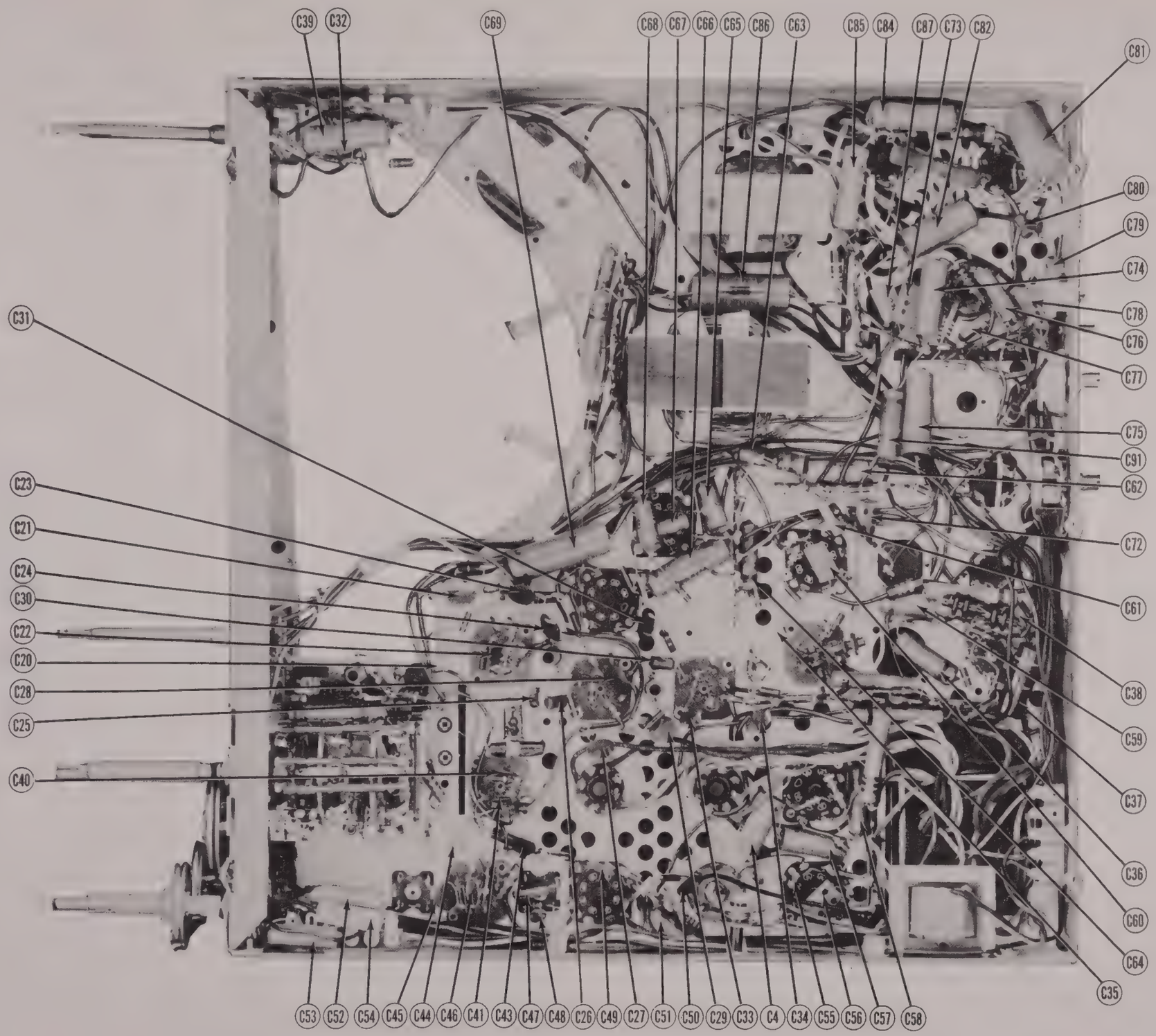


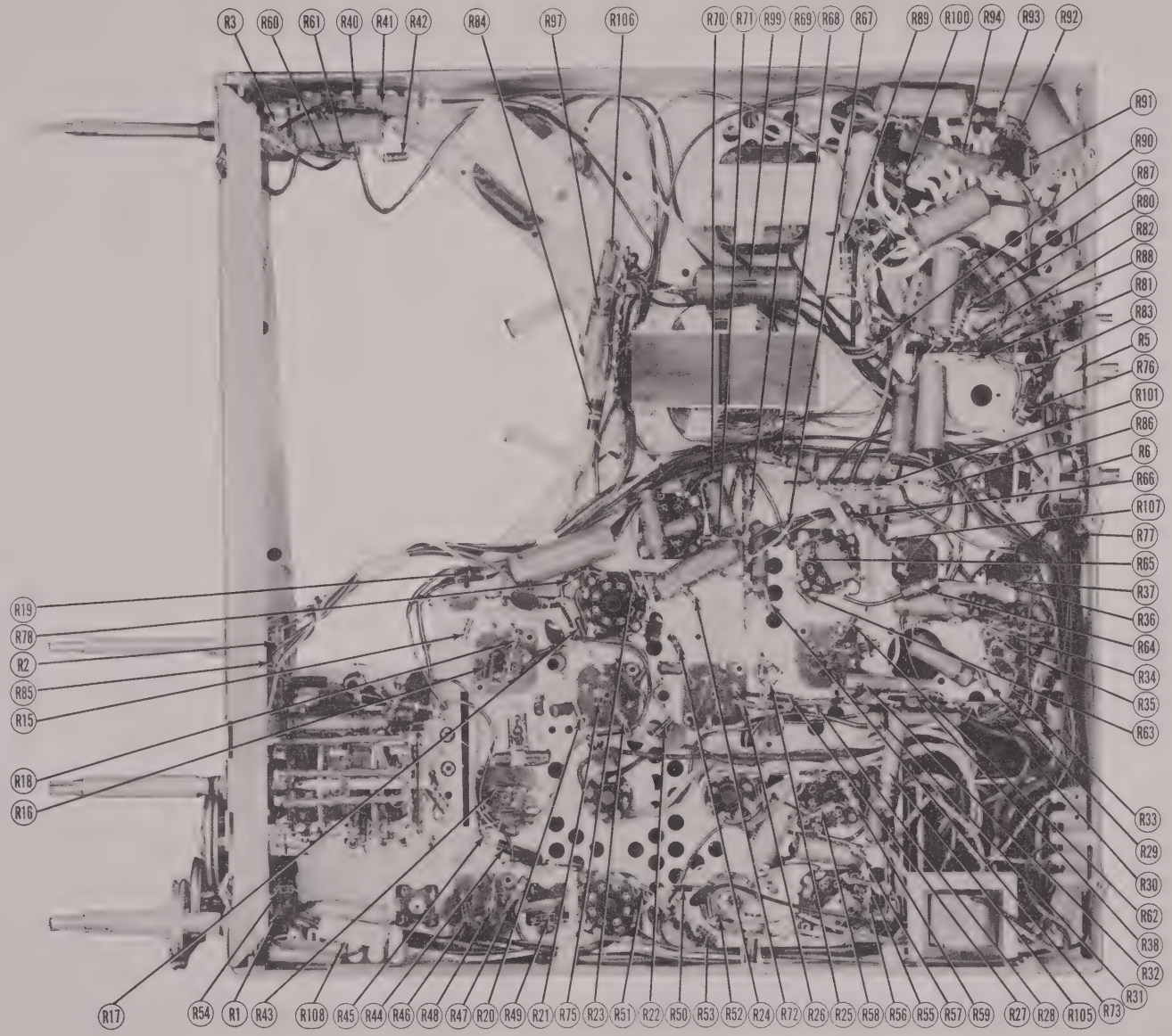
RF TUNER-RIGHT SIDE



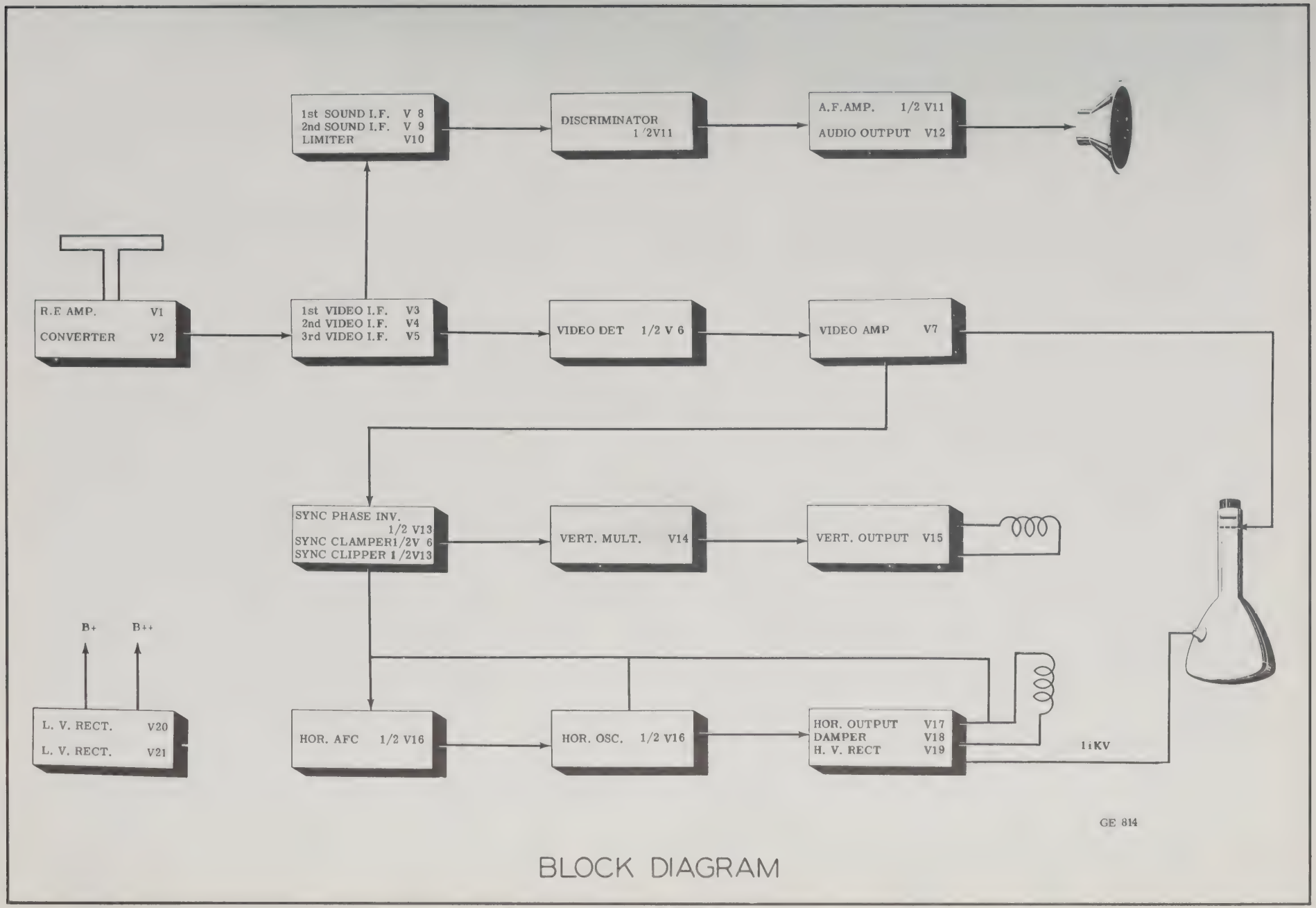
RF TUNER-LEFT SIDE



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: GEN. ELECTRIC PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6AU6	6AU6	7BK	
V2	1st Converter	6AT6	12AT7	9A	
V3	2nd Video IF Amp	6AU6	6AU6	7BK	
V4	3rd Video IF Amp	6AU6	6AU6	7BK	
V5	4th Video IF Amp	6AU6	6AU6	7BK	
V6	Video Det.-Sync. Amp.	6AL5	6AL5	6ST	
V7	Video Amp.	12AT7	12AU7	9A	
V8	1st Sound IF Amp.	6AU6	6AU6	7BK	
V9	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V10	Limiter	6BH7	6BH7	8PK	
V11	Ratio Det. AF Amp.	6AQ7GT	6AQ7GT	8CK	
V12	Sound Output	6K6GT	6K6GT	7S	
V13	Sync Phase Splitter-Sync. Clipper	6SN7GT	6SN7GT	8BD	
V14	Vertical Multi-vibrator	6SN7GT	6SN7GT	8BD	
V15	Vertical Output	6V6GT	6V6GT	7AC	
V16	Horiz. AFC Hor.-Sec.	6SN7GT	6SN7GT	8BD	
V17	Hor. Output	6B16G	6B16G	8BT	
V18	Damper	5U4G	5U4G	5L	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	6X4	6X4	5T	
V21	LV Rectifier	6Y3G	6Y3G	5T	
V22	Picture Tube	12RP4	12RP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: G. E. PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	450	RCE-076	AF663J6B	UP6DJ 674			TVL-58	● Filter
B	30	150						TVA-15	■ Filter
C	30	150							▲ Decoupling
D	30	150							Vert. Output Cath. Byp.
C2A	15	450	RCE-077	AF686J	UP6DJ 934			TVL-58	● Filter
B	15	450							■ Filter
C	30	150							▲ Filter
D	30	150							Filter
C3	2000	6	RCE-083	AF430P	UP7AJ 231			TVL-43	Filter
C4	2x	25	RCE-086	PRS25/25	BBR25-25T			TVA-6	Output Cath. Bypass
C5	10		RCW-1047			GP1K-100			RF Coupling
C6	4		RCW-026			GP2L-0015			RF Cath. Bypass
C7	4		RCW-1052			GP1K-50			RF Coupling
C8	5000		RCW-3014						RF Bypass
C9	4		RCW-2010			GP1K-50			RF Coupling
C10	150		RCW-026			GP2L-0015			RF Fil. Bypass
C11	4		RCW-1052			GP1K-50			RF Coupling
C12	4		RCW-2035			NP0K-5			Fixed Trimmer
C13	5000		RCW-3014						Conv. Plate Dec.
C14	14	500	RCW-1506						Fixed Trimmer
C15	1.6		RCW-1046			NP0K-1.5			Osc. Coupling
C16	12		RCW-2006						Osc. Grid Cap.
C17	4		RCW-2050						Osc. Feedback
C18	5000		RCW-3014						Osc. Plate Bypass *
C19	5000		RCW-3014						Osc. Fil. Bypass
C20	220		RCW-1047	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	IF Coupling
C21	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Bias Filter
C22	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st V. IF Screen Bypass
C23	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	RF Bypass
C24	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st V. IF Plate Dec.
C25	2.2		RCW-1027						S. IF Coupling
C26	220		RCW-1047	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	IF Coupling
C27	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Bias Filter
C28	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd V. IF Screen Bypass
C29	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd V. IF Plate Decoup.
C30	220		RCW-1047	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	IF Coupling
C31	50		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Bias Filter
C32	2.2	20%	RCE-088	PBR2-2	BBR2-2		ST-4-02	TM-12	Video Coupling
C33	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	3rd V. IF Screen Bypass
C34	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	3rd V. IF Decoupling
C35	8		RCW-1002						IF Coupling
C36	.47	20%	UCC-635	P288-05	GT2S5		ST-4-05	TM-15	Video Coupling
C37	4		RCW-014	P688-047	GT6S5		ST-6-05	TM-15	"
C38	350	20%	UCU-1542	1468-0004	5W5T4		MO.5-34	1FM-34	V. Amp. Cath. Bypass
C39	.1	40%	UCC-640	P488-1	GT4F1		ST-4-1	TM-1	Pic. Tube Cath. Dec. †
C40	4		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st S. IF Cath. Bypass
C41	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st S. IF Screen Bypass
C42	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st S. IF Plate Dec.
C43	2.2		RCW-1027	1468-0005	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Bypass
C44	500		UCC-1525	1468-9001	5W5T1	GP1K-100	MO.5-31	1FM-31	S. IF Coupling
C45	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd S. IF Cath. Bypass
C46	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd S. IF Screen Bypass
C47	1	50%	UCU-1528	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	S. IF Coupling
C48	47		RCW-1043	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	Limiter Grid Filter
C49	4		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Limiter Screen Bypass
C50	4		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Limiter Plate Decoupling
C51	15	5%	UCU-1532	1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	RF Bypass
C52	.01	20%	UCC-630	P488-01	GT2S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C53	.01	20%	UCC-630	P488-01	GT2S1	GP2-335-01	ST-4-01	TM-11	Tone Compensation
C54	.02	20%	UCC-631	P488-02	GT2S2		ST-4-02	TM-12	Audio Coupling
C55	47		RCW-1043	1468-00005	5W5Q5	GP1K-50	MO.5-45	1FM-45	RF Bypass
C56	350	20%	UCU-1542	1468-0004	5W5T4	GP2K-300	MO.5-34	1FM-34	AF Plate Bypass
C57	.01	20%	UCC-630	P488-01	GT2S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C58	.005	10%	RCC-039	P688-005	GT5D5	GP2M-005	ST-6-005	TM-25	Output Plate Bypass

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: G. E. PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C59	.05	600	UCC-635	P688-05	GT6S5		ST-6-05	TM-15	Video Coupling
C60	100	500	UCU-1528	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Sync. Coupling
C61	350	500	UCU-1542	1468-0004	5W5T4		MO.5-34	1FM-34	Sync. Clipper Cath. Byp
C62	.005	400	UCC-635	P488-05	GT4S5		ST-4-05	TM-15	Integrator Net.
C63	.01	400	UCC-630	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	" "
C64	.01	400	UCC-630	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	" "
C65	.001	400	UCC-018	P688-001	GT6D1	GP2L-001	ST-6-001	TM-21	Vert. Sync. Coupling
C66	.05	600	UCC-635	P688-05	GT6S5		ST-6-05	TM-15	Vert. Multi. Feedback §
C67	.002	600	RCC-095	P688-02	GT6D2	GP2M-002	ST-6-002	TM-22	Vert. Multi. Feedback
C68	.001	400	UCC-018	P688-001	GT6D1	GP2L-001	ST-6-001	TM-21	Voltage Divider
C69	.1	600	UCC-640	P688-1	GT2P1		ST-6-1	TM-1	Vert. Discharge
C70	.05			P688-05	GT6S5		ST-6-05	TM-15	V. Bias Divider ‡
C71	.002			P688-02	GT6S2		ST-6-02	TM-12	Vert. Sweep Coupling ‡
C72	120	500	UCU-1530						Hor. Sync. Coupling
C73	2200	500	UCU-2560						" "
C74	.05	600	UCC-635	P688-05	GT6S5		ST-6-05	TM-15	AFC Plate Bypass
C75	.2	200	RCC-014	P488-2	GT4P2		ST-4-2	TC-2	AFC Filter
C76	.002	600	UCC-621	P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	" "
C77	180	500	UCU-2534						Hor. Osc. Grid Cap.
C78	1500	500	RCU-295	1467-0015	1W5D15	GP2L-0015	MW.5-215	1FM-215	Hor. Discharge
C79	350	500	UCU-1542	1468-0004	5W5T4		MO.5-34	1FM-34	Hor. Sweep Coupling
C80	100			1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Voltage Divider ‡
C81	.5	200	RCC-016	P288-5	GT2P5		ST-2-5	TC-5	Hor. Output Cath. Bypass
C82	.1	600	UCC-640	P688-1	GT6P1		ST-6-1	TM-1	Hor. Output Screen Bypass
C83	.0022	1000	RCN-019	P1088-0022					Pulse Coupling
C84	.1	400	UCC-640	P488-1	GT4P1		ST-4-1	TM-1	Damper Filter
C85	.05	400	UCC-635	P488-05	GT4S5		ST-4-05	TM-15	" "
C86	.5	200	RCC-016	P288-5	GT2P5		ST-2-5	TC-5	Hor. Sweep Coupling
C87	4	1600	RCN-020						AFC Feedback
C88	47	500	RCN-021						Fixed Trimmer
C89	500	20000	RCN-023						HV Filter
C90	5000		RCW-3014	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Filament Bypass ‡
C91	.01	600	RCC-040	P688-01	GT6S1		ST-6-01	TM-11	Acc.Anode Bypass

* Some models use 1500MMF in this application.
† Some models use .2 MFD in this application.
‡ Not used in all models.
§ Some models use .062MFD (MFGR'S Part No. RCC-095) in this application.
♦ Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: G. E. PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1	2 Meg.	‡	RRC-091			Volume control, tapped @ 500K2, and switch.
R2A	50K2	‡	RRC-090			Horiz. hold control (Dual Concentric)
B	50K2	‡			K6BJ87-1	Vert. hold control " "
R3A	75002	‡	RRC-089			Brightness control (Dual Concentric)
B	500K2	‡			K6BJ86-1	Contrast control " "
R4	30002	4	RRW-033		M76J807	Focus control (Wire Wound)
R5	250K2	‡	RRC-084	Q11-130	M-55-8	Vert. size control
R6	10002	2	RRC-086	W-1000	43-1000	Vert. linearity control (Wire Wound)

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: G. E. PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ARE ± 5% UNLESS OTHERWISE STATED.
R7	200Ω	‡	URD-1032		RF Cathode
R8	62002	1	URE-1068		RF Plate
R9	56002	1	URE-1067		RF Plate
R10	220K2	‡	URD-1105		Conv. Grid
R11	24K2	‡	URD-1082		Conv. Plate Transformer Shunt
R12	27K2	1	URE-083		Conv. Plate Decoupling 10%
R13	22K2	‡	URD-1081		Osc. Grid
R14	30002	1	URE-1060		Osc. Plate
R15	2702	‡	URD-1059		1st Video IF Grid
R16	472	‡	URD-1017		1st Video IF Cathode
R17	10002	‡	URD-049		1st Video IF Plate Decoupling 20%
R18	24K2	‡	URD-1082		1st Video IF Screen Decoupling
R19	100K2	‡	URD-097	BTS-100K	Bias Network 20%
R20	16002	‡	URD-1054		2nd Video IF Grid
R21	472	‡	URD-1017		2nd Video IF Cathode
R22	10002	‡	URD-049		2nd Video IF Plate Decoupling 20%
R23	24K2	‡	URD-1082		2nd Video IF Screen Decoupling
R24	27002	‡	URD-1059		3rd Video IF Grid
R25	43K2	‡	URD-1088		3rd Video IF Transformer Shunt
R26	24K2	‡	URD-1082		3rd Video IF Screen
R27	10002	‡	URD-049		3rd Video IF Decoupling 20%
R28	51002	‡	URD-1066		Video Det. Diode Load
R29	1 Meg.	1	URD-121	BTS-1 Meg.	Video Amp. Grid 20%
R30	5100Ω	1	URE-1066	BTA-47K-5%	Video Amp. Plate 5%
R31	10K2	2	URD-1073	BT-2-10K-5%	" " " 5%
R32	11K2	2	URF-1074	BT-2-10K-5%	" " " 5%
R33	56002	‡	URD-1067	BTS-5600-5%	Voltage Divider 5%
R34	1 Meg.	‡	URD-121	BTS-1 Meg.	Video Output Grid 20%
R35	120Ω	‡	URD-1027	BW-½-120-5%	Video Output Cathode 5%
R36	33002	2	URF-061	BT-2-3300-5%	Video Output Plate 5%
R37	10002	‡	URD-1049	BTS-1000-5%	" " " 5%
R38	1 Meg.	‡	URD-121	BTS-1 Meg.	Voltage Divider 10%
R39	24K2	‡	URD-1082	BTS-22K	" " 10%
R40	270K2	‡	URD-107	BTS-270K	" " 10%
R41	20K2	‡	URD-1030	BT-2-22K-5%	" " 5%
R42	470Ω	‡	URD-1065	BTS-4700-5%	" " 5%
R43	120Ω	‡	URD-1027		1st Sound IF Cathode
R44	22K2	1	URE-1081		1st Sound IF Plate
R45	56K2	‡	URD-091		1st Sound IF Screen 10%
R46	120Ω	‡	URD-1027		2nd Sound IF Cathode
R47	150K2	‡	URD-101		2nd Sound IF Screen 10%
R48	22K2	1	URE-1081		2nd Sound IF Plate
R49	56K2	‡	URD-091		Limiter Grid 10%
R50	10002	‡	URD-049		Limiter Plate Decoupling 20%

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: G. E. PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES
R51	220K2	‡	URD-105		Limiter Screen 10%
R52	68K2	‡	URD-093	BTS-68K	Balancing 20%
R53	68K2	‡	URD-093	BTS-68K	De-emphasis 20%
R54	92K2	‡	URD-095	BTS-82K	Tone Compensation 10%
R55	10002	‡	URD-049	BTS-1000	" " 20%
R56	10 Meg.	‡	URD-145	BTS-10 Meg.	AF Grid 20%
R57	220K2	‡	URD-105	BTS-220K	AF Plate 10%
R58	470K2	‡	URD-113	BTS-470K	Output Grid 20%
R59	7502	1	URE-1046	BTA-680-5%	Output Cathode 5%
R60	82K2	‡	URD-095	BTS-82K-5%	Voltage Divider 5%
R61	56K2	‡	URD-091	BTS-56K	" " 10%
R62	2.2 Meg.	‡	URD-129	BTS-2.2 Meg.	Phase Inv. Grid 20%
R63	10002	‡	URD-049	BTS-1000	Phase Inv. Cathode 20%
R64	15K2	1	URE-077	BTA-15K	Phase Inv. Plate 10%
R65	3.9 Meg.	‡	URD-135	BTS-3.9 Meg.	Sync. Clipper Grid 10%
R66	68002	‡	URD-069	BTS-6800	Sync. Clipper Cathode 10%
R67	15002	‡		BTS-1500	Sync. Clipper Plate 10%
R68	82002	‡	URD-071	BTS-8200	Integrator 10%
R69	82002	‡	URD-071	BTS-8200	" 10%
R70	75K2	‡	URD-1094	BTS-82K-5%	Vert. MV Grid 5%
R71	220K2	‡	URD-1105	BTS-220K-5%	Vert. MV Plate 5%
R72	82K2	‡	URD-095	BTS-82K	Vert. MV Grid 10%
R73	24K2	‡	URD-1082	BTS-22K-5%	Vert. MV Grid 5%
R74	10 Meg.	‡	URD-145	BTS-10 Meg.	Vert. MV Plate See Note 2 10%
R75	2.2 Meg.	‡	URD-1129	BTS-2.2 Meg-5%	" " " 5%
R76	33K2	1	URE-085	BTA-33K	Voltage Divider 10%
R77	470Ω	1	URE-041	BTA-470	Vert. Output Cathode 20%
R78	100K2	‡	URD-097	BTS-100K	Vert. Output Transformer Shunt 20%
R79	27002	‡	URD-1059	BTS-2700-5%	Integrator See Note 2 5%
R80	680K2	1	URE-1117	BTA-680K	Horiz. AFC Grid 10%
R81	180K2	‡	URD-1103	BTS-180K-5%	Horiz. AFC Cathode 5%
R82	82K2	‡	URD-1095	BTS-82K	Voltage Divider 10%
R83	33K2	‡		BTS-33K-5%	" " 5%
R84	100K2	‡	URE-097	BTA-100K	Horiz. AFC Plate 10%
R85	24K2	‡	URD-1082	BTS-22K-5%	Voltage Divider 5%
R86	82002	‡	URD-071	BTS-8200	Horiz. AFC Filter Network 10%
R87	3.3 Meg.	1	URE-133	BTA-3.3 Meg.	Voltage Divider 10%
R88	82K2	‡	URD-1095	BTS-82K	Horiz. Osc. Grid 10%
R89	47K2	1	URE-1089	BTA-47K	Horiz. Osc. Plate 10%
R90	470K2	‡	URD-113	BTS-470K	Feedback 20%
R91	330Ω	‡	URD-037		Parasitic Supp. 20%
R92	1 Meg.	‡	URD-121	BTS-1 Meg.	Horiz. Output Grid 20%
R93	822	2	URF-1023	BW-2-82-5%	Horiz. Output Cathode (Wire Wound) 5%
R94	65002	10		AB-7000	Horiz. Output Screen Decoupling (Wire Wound) See Note 1
R95	332	1	URE-013		Parasitic Supp.
R96	470K2	‡	URD-113		Current Limiting
R97	33002	2	URF-061	BT-2-3300	Horiz. Size Control Coil Shunt 20%
R98	47002	‡	URD-065	BTS-4700	Horiz. Linearity Coil Shunt 20%
R99	330Ω	‡	URD-037	BW-½-330-5%	Horiz. Centering
R100	560K2	‡	URD-115	BTS-560K	Feedback 10%
R101	100K2	‡	URD-097	BTS-100K-5%	Acc. Anode Load
R102	330K2	1	URE-109		HV Filter 10%
R103	330K2	1	URE-109		" " 10%
R104	330K2	1	URE-109		" " 10%
R105	22002	2	URF-1057	BW-2-2200-5%	Filter
R106	900Ω	7	RRW-035	AB-900	Focus Coil Shunt (Wire Wound)
R107	1Ω	‡	RRW-034		Surge Limiter (Wire Wound)
R108	1 Meg.	‡	URD-121	BTS-1 Meg.	Isolation 20%

Note 1. Some models use two resistors in parallel to obtain correct resistance and wattage.
Note 2. Not used in all models.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: G. E. PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: MERIT PART No.
T1	117VAC @ 2A	750VCT @ .125 ADC 650VCT @ .099 ADC	5VAC @ 3A	5VAC @ 2A	RTP-066			
		SEC. 4	SEC. 5	SEC. 6				
		6VAC @ 2A	12.6VAC @ 3.5A	6.3VAC @ .6A				

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE SEC.	RATING: DC RESISTANCE PRI.	RATING:	REPLACEMENT DATA: G. E. PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: MERIT PART No.	NOTES
T2	120Ω Tap @ 35Ω			RTM-003				Hor.Osc.Transformer
T3	38Ω	SEC. 1	230Ω	RTO-058				Hor. Output Trans.
		SEC. 2	71Ω					
		SEC. 3	1Ω					
		SEC. 4	0Ω					
T4	730Ω		11Ω	RTO-053		TSO-4	A-3035	Vert.Output Trans.
T5A	17Ω			RLD-007				Hor.Deflection Coil
B	62Ω							Vert.Deflection Coil
T6	82Ω			RLF-017				Focus Coil

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		G. E. PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T7	8KΩ	3.4Ω	600Ω	.6Ω	RTO-052	A-3823	RO-301	A-2901	

SPEAKER

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	G. E. PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.4Ω	ROP-017		46A15	
	CONE DIA.	V. C. DIA.				
SP2	4" x 6"	3/4"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	G. E. PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
L1	.125A	160Ω	7 Henries	RL1-059	C-2309	R-8120	C-2993#	# Drill new mounting holes.
L2	.098A	160Ω	7 Henries	RL1-060	C-2309	R-8120	C-2993#	

COILS (RF-IF)

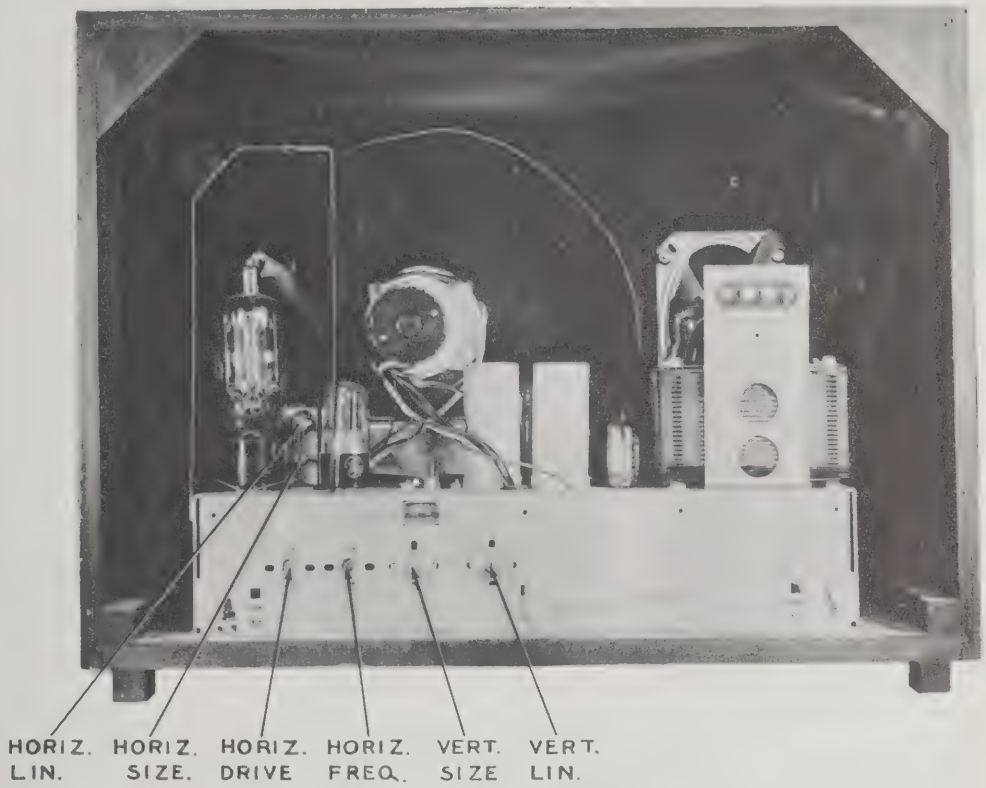
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	G. E. PART No.	MEISSNER PART No.	
L3	Ant. Input	0Ω	0Ω	RLA-031		
L4	Comp.Choke	0Ω		RLI-006		
L5	RF Cath.	0Ω		RLI-003		Low Band
L6	RF Cath.	0Ω		RLI-006		High Band Only
L7	Osc. Cath.	1.5Ω		RLI-019		
L8	Osc. Fil.	0Ω		RLI-005		
L9	1st Video IF	.5Ω	.2Ω	RTL-081		
L10	Video Trap	.2Ω		RLI-005		
L11	2nd Video IF	.5Ω		RTL-082		
L12	Sound Take Off Trap	.5Ω		RLI-061		
L13	3rd Video IF	.5Ω		RTL-083		
L14	4th Video IF	.5Ω		RTL-089		
L15	Peaking	7Ω		RLI-038		165 Microhenries
L16	Peaking	7Ω		RLI-038		165 Microhenries
L17	Peaking	7Ω		RLI-038		165 Microhenries
L18	Peaking	7Ω		RLI-038		165 Microhenries
L19	1st Sound IF	0Ω		RTL-085		
L20	2nd Sound IF	0Ω		RTL-085		
L21	Disc.Trans.	.1Ω		RTD-007		
L22	Hor. Size	9Ω		RLD-004		
L23	Hor.Line.	30Ω		RLD-005		

SELENIUM RECTIFIER

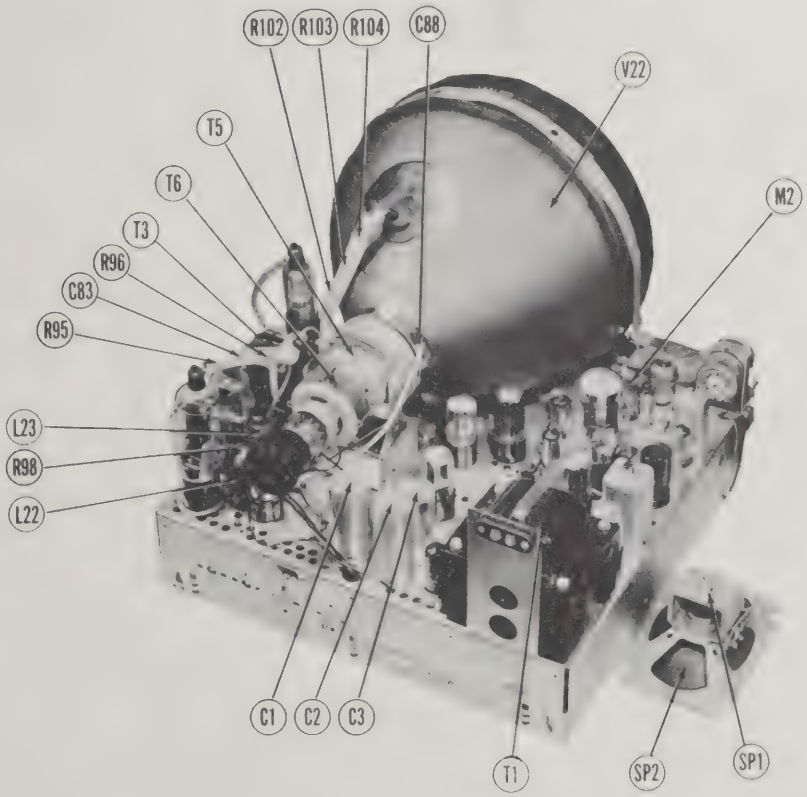
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	G. E. PART No.			
M1	.150A	RER-003			

MISCELLANEOUS

ITEM No.	PART NAME	G. E. PART No.	NOTES
M2	RF Tuner	RFX-023	Complete
	Safety Glass	RDW-012	
	Cabinet	RAV-061	
	Back Cover	RAB-083	
	Knob	RDK-152	Vert. Hold and Contrast
	Knob	RDK-153	Hor. Hold and Brightness
	Knob	RDK-155	On-Off-Volume and Channel Selector
	Core	REI-015	For T2
	Core	REI-016	For L9, L11, L13, L19, L20 and Secondary of L14
	Core	REI-017	For L23
	Core	REI-018	For L22
	Core	REI-019	For L21
	Core	REI-026	For Primary of L14
	Core		



CABINET-REAR VIEW



CHASSIS TOP VIEW

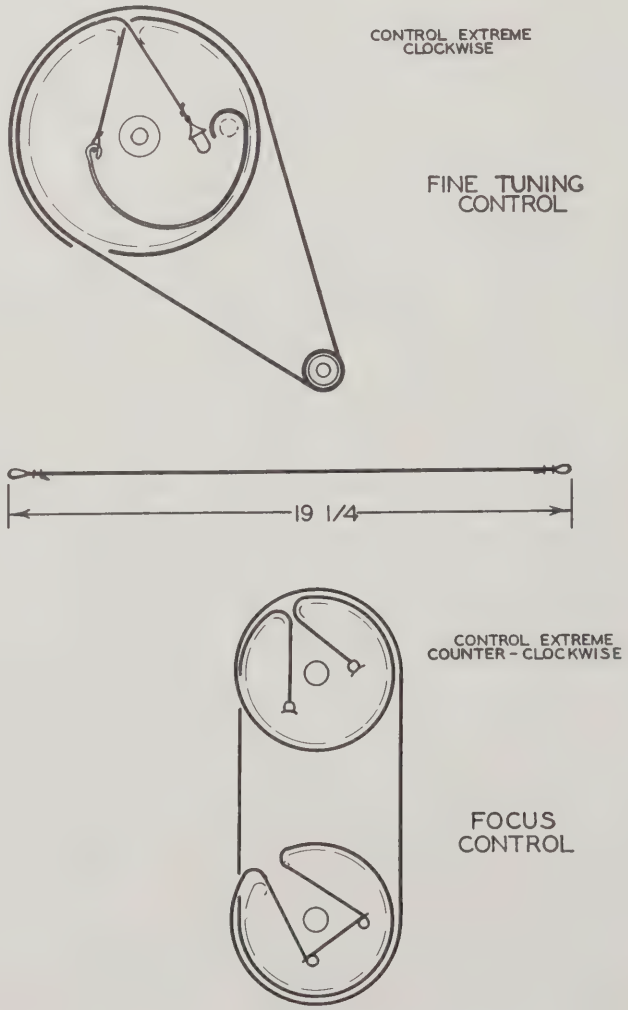
CENTERING ADJUSTMENTS

Centering adjustments are made by means of two circular magnets mounted on the focus and deflection assembly. The assembly may be turned the necessary direction, and the amount of correction may be changed by rotating the large magnet with respect to the smaller one and by sliding the two magnets together or apart. Maximum effect is with the two magnets close together and aligned. Minimum effect is achieved by turning the large magnet to oppose the small one.

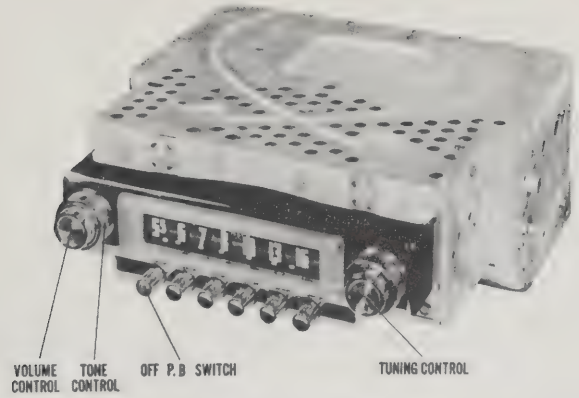
HORIZONTAL LINEARITY ADJUSTMENT

The horizontal drive control should first be set to minimum capacity. With the horizontal size control at approximately its correct position adjust the horizontal linearity control for best linearity. If this does not give good linearity turn the horizontal drive control slightly clockwise and repeat the adjustments. If there is a foldover of the pattern, turn the horizontal drive control clockwise until the fold disappears.

DIAL CORD STRINGING



MERCURY MODEL
8MM990 (8M-18805-B)



MERCURY MODEL 8MM990

TRADE NAME	Mercury, Model 8MM990 (8M-18805-B).
SUPPLIER	Lincoln-Mercury, Div. Of Ford Motor Co., Detroit, Michigan.
TYPE SET	Battery Operated Custom-Built Superheterodyne Automotive Receiver.
TUBES (EIGHT)	Types 6BA6 RF Amp., 6SA7GT Converter, 6BA6 IF Amp., 6SR7GT DET-AVC-AF, 6SN7GT 2nd AF Phase Inv., (2) 6V6GT Power Output, 6X5GT Rectifier.
POWER SUPPLY	6 Volt Storage Battery RATING 7.4 Amp. @ 6.3 Volts DC
TUNING RANGE—BROADCAST	535-1605KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the tone switch to the "speech" position.
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
For dummy antenna, connect the high side of the signal generator through 27MMF to the antenna receptacle. Connect a 23MMF capacitor from the antenna receptacle to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to Pin 8 (Grid) of 6SA7GT (V2). Low side to chassis.	265KC	Tuning slugs out.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output.
2.	Dummy Antenna	High side thru dummy to antenna receptacle. Low side to chassis.	535KC	535KC	"	A5	Adjust for maximum output.
3.	Dummy Antenna	"	1300KC	1300KC	"	A6, A7 A8	Adjust for maximum output. If dial calibration is off, turn dial pointer eccentric screw until correct.
	ALIGNMENT PROCEDURE AFTER CORE OR COIL REPLACEMENT.						
4.	Dummy Antenna	High side thru dummy to antenna receptacle. Low side to chassis.	1675KC	1600KC		A5	Before adjusting A5 for max. output, screw cores completely out of the ant., RF., and osc. coil.
5.	Dummy Antenna	"	1675KC	1600KC	Across voice coil.	A6, A7, A8	Adjust for maximum output.
6.	Dummy Antenna	"	1300KC	1300KC	"	A9	Return coil cores so they project about 11/16" from the coil forms. Adjust A9 for max. output.
7.	Dummy Antenna	"	1300KC	1300KC	"	A10,A11 A12	Adjust for max. output.
8.	Dummy Antenna	"	600KC	600KC	"	A13	Rock tuning gang and adjust for max. output. Check calibration at 1300KC. If the receiver is off scale or insensitive, repeat steps 6, 7, & 8.
9.	After the receiver is aligned, the high frequency tuning range should be checked. If the range is more or less than 1605KC, the lug stop near the volume control should be bent to limit the frequency coverage to 1605KC. Install the receiver in car and tune in weak station near 1300KC and fully extend the antenna. Readjust A8 for maximum volume.						

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PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: MERCURY PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	RF Amp.	6BA6	6BA6	7BK	
V2	Converter	6SA7GT	6SA7GT	8AD	
V3	IF Amp.	6BA6	6BA6	7BK	
V4	DET-AVC-AF	6SR7GT	6SR7GT	8Q	
V5	2nd AF Amp - Phase Inverter	6SN7GT	6SN7GT	8BD	
V6	Power Output	6V6GT	6V6GT	7AC	
V7	Power Output	6V6GT	6V6GT	7AC	
V8	Rectifier	6X5GT	6X5GT	6S	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

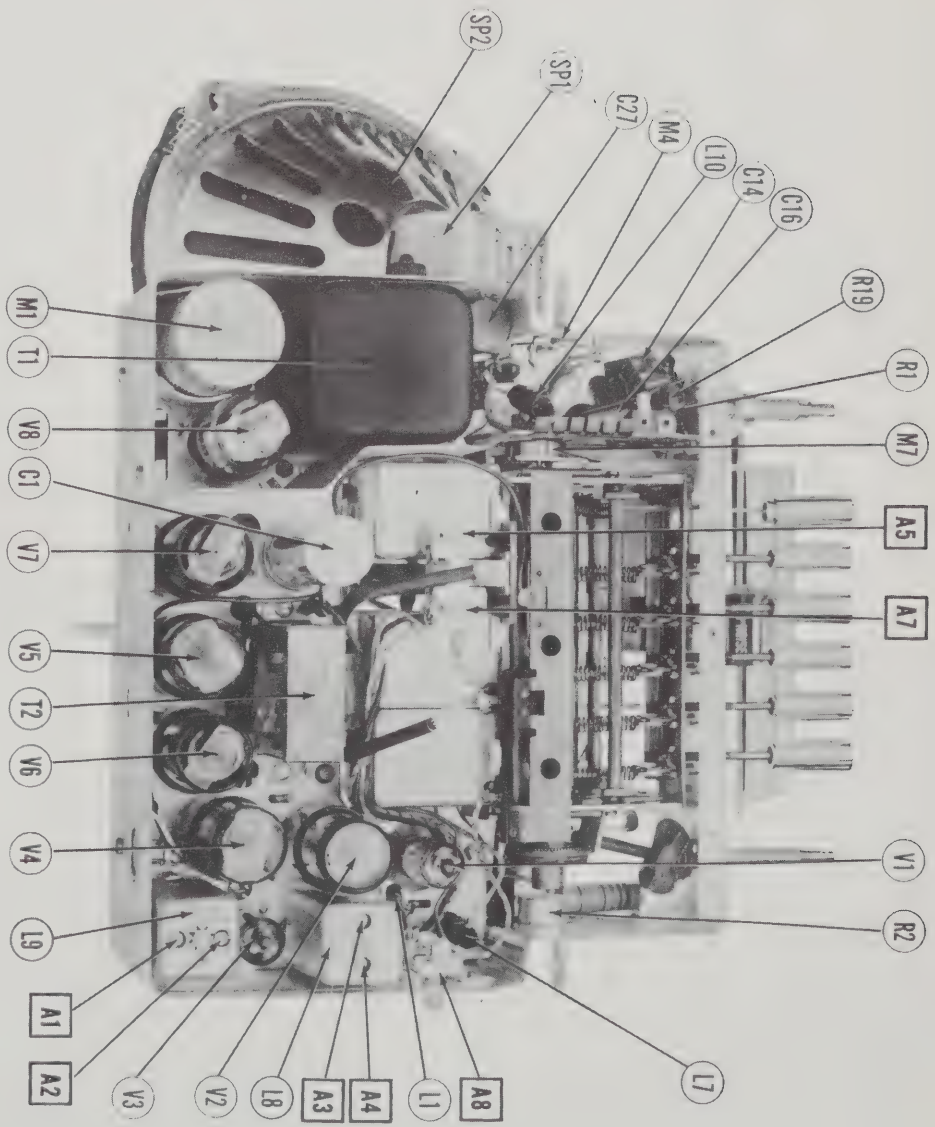
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA: MERCURY PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	400	22-1484	AF44J4A	UP2245C		DY-312	EL-322	■ Filter
B	20	400							▲ Filter
C	20	25							Output Cath. Bypass
C2	20	25	22-1553	PRS25/25	BR202A		M-25-25	TA-25	AF Cath. Bypass
C3	.0047	600	22-1752	P688-0047	GT6D5	GP2M-005	ST-6-005	TM-25	AVC Filter
C4	.1	400	22-170	P488-1	GT4P1		ST-4-1	TM-1	Decoupling
C5	.1	200	22-190	P288-1	GT2P1		ST-2-1	TM-1	Cathode Bypass
C6	100	500	22-1730	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Coupling
C7	250	500	22-1136	1469-00025	5R5T25	GP2K-250	MOS.5--325	MS-325	Fixed Trimmer
C8	100	500	22-1730	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Osc. Grid Cap
C9	260		22-1712						Fixed Trimmer
C10	.02	200	22-1751	P488-02	GT2S2		ST-4-02	TM-12	AVC Filter
C11	100		22-1730	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	IF Coupling
C12	.0047	400	22-906	P688-0047	GT6D5	GP2M-005	ST-6-005	TM-25	Audio Coupling
C13	150	500	22-1137	1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	Tone Compensation
C14	560	500	22-242	1468-00075	1W5T6	GP2K-750	MO.5-36	1FM-37	Tone Compensation Note
C15	.005	200	22-906	P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Tone Compensation
C16	.01	200	22-1466	P488-01	GT2S1	GP2-335-01	ST-4-01	TM-11	Tone Compensation
C17	.0015	600	22-1743	P688-0015	GT6D1	GP2L-0015	ST-6-001	TM-21	Tone Compensation
C18	220	500	22-182	1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	AF Plate Bypass
C19	.047	600	22-1749	P688-047	GT6S5		ST-6-05	TM-15	Audio Coupling
C20	.1	400	22-1748	P488-1	GT4P1		ST-4-1	TM-1	AF Plate Decoupling
C21	.022	600	22-1750	P688-022	GT6S2		ST-6-02	TM-12	Audio Coupling
C22	.022	600	22-1750	P688-022	GT6S2		ST-6-02	TM-12	Audio Coupling
C23	.0033	600	22-1747	P688-0033	GT6D3	GP2M-003	ST-6-003	TM-23	Output Plate Bypass
C24	.0033	600	22-1747	P688-0033	GT6D3	GP2M-003	ST-6-003	TM-23	Output Plate Bypass
C25	.0082	1600	22-1448		GT16D8		STM-16-008	MB-28	Buffer
C26	.5	100	22-1728					68P20	Hash Filter
C27	.5	120	22-1238	P288-5	GP2P5		SHH-1	68P25	Hash Filter

Note. Some Models Use 750MMF In This Application.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA: MERCURY PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	63-1590			Volume control } Dual
B	Switch		Not Req.			Tone Switch } Concentric
R2	800Ω	½	63-1379			Sensitivity control

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MERCURY PART No.	IRC PART No.	
R3	330KΩ	½	63-1891	BTS-330K	RF Grid
R4	10KΩ	½	63-1827	BTS-10K	RF Plate
R5	330KΩ	½	63-1891	BTS-330K	Conv. Grid
R6	820Ω	½		BTS-820K	Conv. Cathode
R7	22KΩ	½		BTS-22K	Osc. Grid
R8	470Ω	½	63-1771	BTS-470	IF Cathode
R9	1 Meg.	½	63-1912	BTS-1 Meg.	Diode Load
R10	1 Meg.	½	63-1912	BTS-1 Meg.	AVC Network
R11	12KΩ	2		BT-2-12K	Screen Dropping
R12	220KΩ	½	63-1884	BTS-220K	Diode Load
R13	220KΩ	½	63-1884	BTS-220K	Tone Compensation
R14	1500Ω	½		BTS-1500	1st AF Cathode
R15	56KΩ	½	63-1859	BTS-56K	1st AF Plate
R16	27KΩ	½	63-1845	BTS-27K	1st AF Plate Decoupling
R17	120KΩ	½	63-1873	BTS-120K	Tone Compensation
R18	68KΩ	½	63-1862	BTS-68K	Tone Compensation
R19	100KΩ	½	63-1869	BTS-100K	Tone Compensation
R20	56KΩ	½	63-1859	BTS-56K	Muting Network
R21	1000Ω	½	63-1785	BTS-1000	2nd AF and Phase Inv. Cathode
R22	330KΩ	½	63-1891	BTS-330K	2nd AF Grid
R23	56KΩ	½	63-1859	BTS-56K	2nd AF Plate
R24	24KΩ	½		BTS-22K	Phase Inv. Grid
R25	56KΩ	½	63-1859	BTS-56K	Phase Inv. Plate
R26	470KΩ	½	63-1897	BTS-470K	Feed Back
R27	330KΩ	½	63-1891	BTS-330K	Output Grid
R28	330KΩ	½	63-1891	BTS-330K	Output Grid
R29	330Ω	2	63-1622	BW-2-330	Output Cathode (Wire Wound)
R30	1800Ω	2	63-1620	BW-2-1800	Filter
R31	82Ω	½	63-1740	BW-½-82	Hash Suppression
R32	82Ω	½	63-1740	BW-½-82	Hash Suppression

TRANSFORMER (VIBRATOR)

ITEM No.	RATING				REPLACEMENT DATA			
	PRI.	SEC. 1	SEC. 2	SEC. 3	MERCURY PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.
T1	6VDC @ 3.5A	460VCT @ .053A DC			95-1073	P-6471	VT-3	P-4071

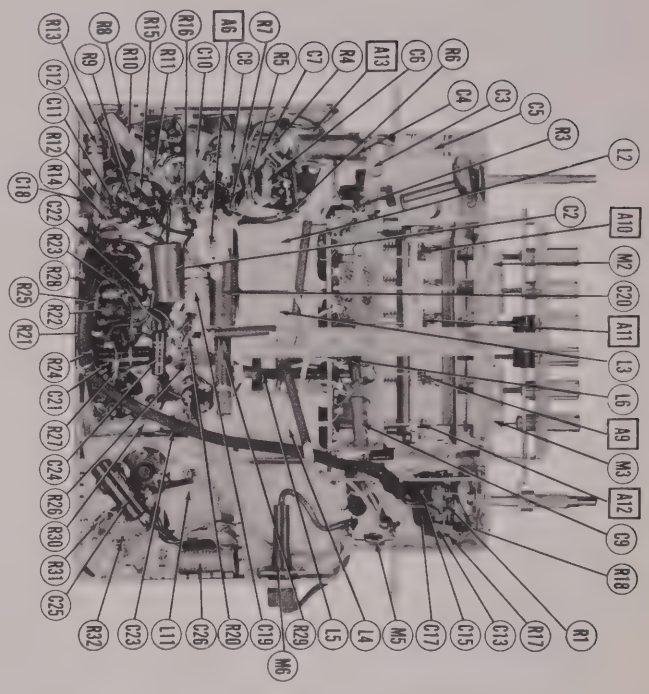
TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MERCURY PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T2	8500Ω	3.7Ω	425Ω	.4Ω	95-1079	A-3852	RO-110	A-2836	

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
	FIELD	V.C. IMP.	MERCURY PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.7Ω	49-627	ST-811 MOD.P69-T	69A3	
	CONE DIA.	V.C. DIA.				
SP2	6"X9"	3/4"				

CHASSIS—BOTTOM VIEW



PUSHBUTTON ADJUSTMENT

Make up a list of five stations desired to be received by automatic tuning preferably listed in sequence from lowest frequency to highest.

1. Tune in first station manually.
2. Loosen #1 pushbutton by turning it not more than 2 turns.
3. Depress the #1 button as far as it will go. Be sure desired station is tuned in accurately manually.
4. Release #1 button and tighten the knob.
5. Repeat the above procedure for the four remaining pushbuttons.

PARTS LIST AND DESCRIPTIONS (Continued)

R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA	
		PRI.	SEC.	MERCURY PART No.	MEISSNER PART No.
L1	Ant. Noise Choke	1Ω		S-8619	
L2	Ant. Coil	13Ω		S-14227	
L3	RF Coil	13Ω		S-14227	
L4	RF Coil	13Ω		S-14227	
L5	Osc. Coil	3.6Ω		S-14228	
L6	Osc. Series Coil	1Ω		S-14226	
L7	Osc. Shunt Coil	2Ω		S-14225	
L8	Input IF	40Ω	40Ω	95-1077	
L9	Output IF	60Ω		95-1078	
L10	Hash Choke	0Ω		S-11232	
L11	Hash Choke	0Ω		20-213	

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS	FREQUENCY	REPLACEMENT DATA			INSTALLATION NOTES
				MERCURY PART No.	CORNELL-DUBILIER PART No.	RADIART PART No.	
M1	Int.	6V	115∿	190-22	C-00	5300	

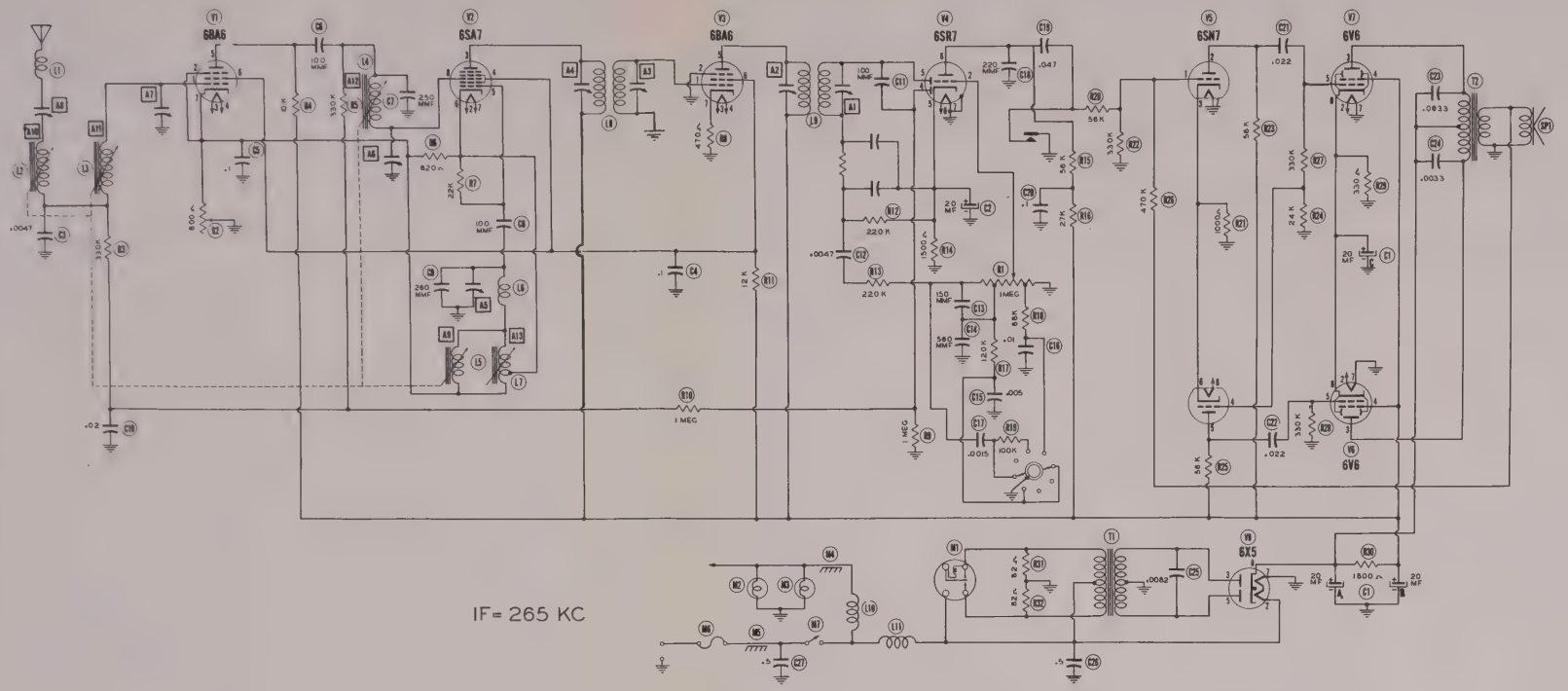
DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					MERCURY PART No.		
M2	Bayonet	6-8	.25	Blue			Type #44
M3	Bayonet	6-8	.25	Blue			Type #44

MISCELLANEOUS

ITEM No.	PART NAME	MERCURY PART No.	NOTES
M4	Spark Plate		
M5	Spark Plate		
M6	Fuse	136-11	14 Amp.
M7	Switch	85-435	
A5	Dual Trimmer	22-1722	Osc. Adj.
A7			Ant. Adj.
A6	Trimmer	22-1715	RF Adj.
A8	Trimmer	22-1721	Ant. Adj.
	Dial Scale	26-395	
	Dial Pointer	59-208	

DATE 6/49 49-17-10 USE #69 FOLDER #10
DATE 6/49 49-17-10 USE #69 FOLDER #10



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	0V	0V	6.3VDC	0V	150VDC	70VDC	2.7VDC	
V 2	6SA7GT	0V	0V	175VDC	70VDC	1-1.2 VDC	2.6VDC	6.3VDC	
V 3	6BA6	0V	0V	0V	6.3VDC	175VDC	70VDC	2.7VDC	
V 4	6SR7GT	0V	0V	2VDC	.9VDC	0V	55VDC	6.3VDC	0V
V 5	6SN7GT	0V	83VDC	3VDC	0V	83VDC	3VDC	6.3VDC	0V
V 6	6V6GT	0V	6.3VDC	205VDC	170VDC	0V	0V	0V	
V 7	6V6GT	0V	6.3VDC	205VDC	170VDC	0V	0V	0V	
V 8	6Y5GT	0V	6.3VDC	220VAC	0V	220VAC	0V	0V	207VDC

‡TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6BA6	2.3 Meg.	0Ω	.1Ω	0Ω	112KΩ	114KΩ	260Ω	
V 2	6SA7GT	0Ω	0Ω	12KΩ	114KΩ	22.5KΩ	250Ω	.1Ω	
V 3	6BA6	40Ω	0Ω	0Ω	.1Ω	12KΩ	114KΩ	470Ω	
V 4	6SR7GT	0Ω	1 Meg.	1.5KΩ	250KΩ	1 Meg.	68KΩ	.1Ω	0Ω
V 5	6SN7GT	210KΩ	156KΩ	1000Ω	24KΩ	156KΩ	1000Ω	.1Ω	0Ω
V 6	6V6GT	0Ω	.1Ω	180Ω	12KΩ	330KΩ	Inf.	0Ω	
V 7	6V6GT	0Ω	.1Ω	180Ω	12KΩ	25 OK	Inf.	0Ω	
V 8	6Y5GT	Inf.	.1Ω	210Ω	Inf.	190Ω	Inf.	0Ω	200KΩ

† Measured From Pin 8 Of V8.

1 - DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1000 ohms per volt.

2 - Socket connections are shown as bottom views.

3 - Measured values are from socket pin to common negative.

4 - Battery voltage maintained at 6 volts for voltage readings.

5 - Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.

6 - Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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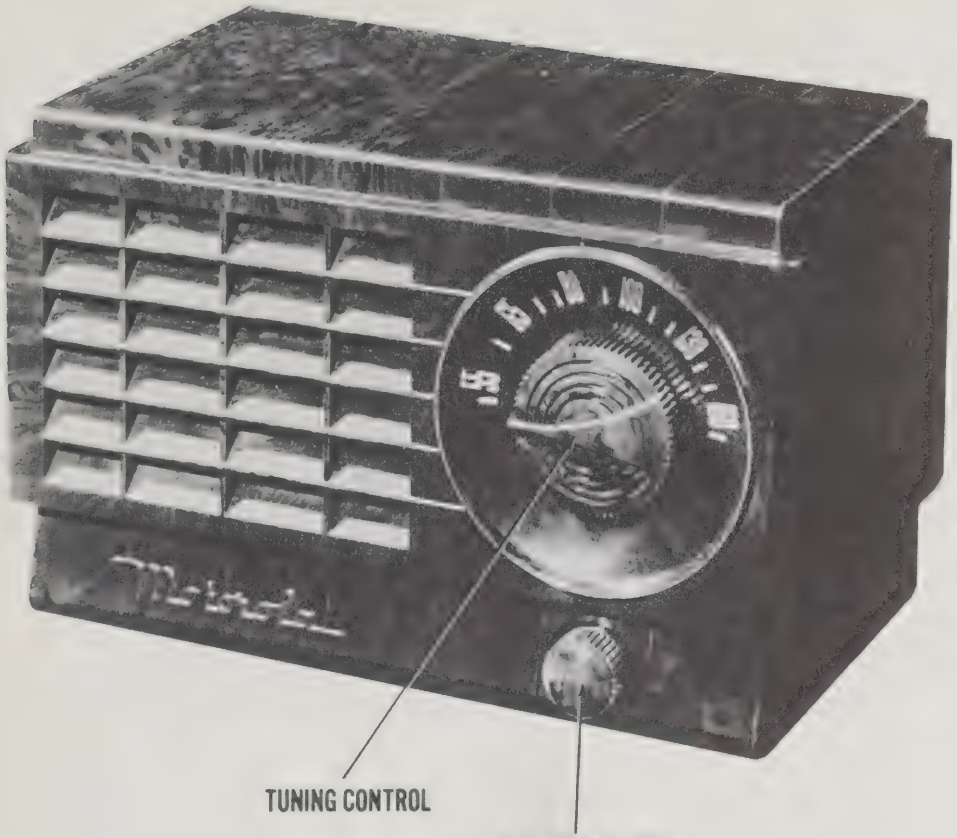
PHOTOFACT* Folder

MOTOROLA MODELS
58R11A, 58R12A, 58R13A, 58R14A, 58R15A, 58R16A

MOTOROLA MODELS
58R11A, 58R12A, 58R13A, 58R14A, 58R15A, 58R16A



MOTOROLA MODELS
58R11A, 58R12A, 58R13A, 58R14A, 58R15A, 58R16A

MOTOROLA MODEL 58R11A

TRADE NAME	Motorola, Models 58R11A, 58R12A, 58R13A, 58R14A, 58R15A, 58R16A (Ch. HS-184)
MANUFACTURER	Motorola Inc., 4545 Augusta Blvd., Chicago 51, Illinois.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna.
TUBES (FIVE)	Types 12BE6 Converter, 12BA6 1F Amp., 12AT6 DET-AVC-AF, 50B5 or 50C5 Power Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer parallel with base of dial.

Use isolation transformer if available. If not, connect a .1MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to rear stator of tuning gang. Low side to chassis.	455KC	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2.	.1MFD	"	1620KC	"	"	A5	Adjust for maximum output.
3.		Loop	1400KC	Tune for max. signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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DATE 9/49 4917-11 SET #69 FOLDER #11

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RMA BASE TYPE	INSTALLATION NOTES
		MOTOROLA PART No.	STANDARD REPLACEMENT		
V1	Converter	12BE6	12BE6	7CH	
V2	IF Amp.	12BA6	12BA6	7BK	
V3	DET-AVC-AF	12AT6	12AT6	7BT	
V4A	Power Output	50B5	50B5	7BZ	
B	Power Output	50C5	50C5	7CV	
V5	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						IDENTIFICATION CODES AND INSTALLATION NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	
C1A	50	150	23K482857	PRS150/50 -30	EDL5315		DSB-5030 -150	TA-5330	
B	30	150							Filter Red Filter Green
C2	.05	200	8S9821	P288-05	GT2S5		ST-4-05	TM-15	AVC Filter
C3	250		21K77375	1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	Diode RF Filter
C4	.005	600	8S9813	P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Audio Coupling
C5	250		21K77375	1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	AF Plate Bypass
C6	.01	400	8S9809	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C7	.02	400	8S9802	P488-02	GT4S2		ST-4-02	TM-12	Output Plate Bypass
C8	.05	400	8S9816	P488-05	GT4S5		ST-4-05	TM-15	Line Filter
C9	.15	400	8A72686	P488-15	GT4P2		ST-4-2	72P53	Line Isolation Note

Note. Not Used In All Models.

CONTROLS

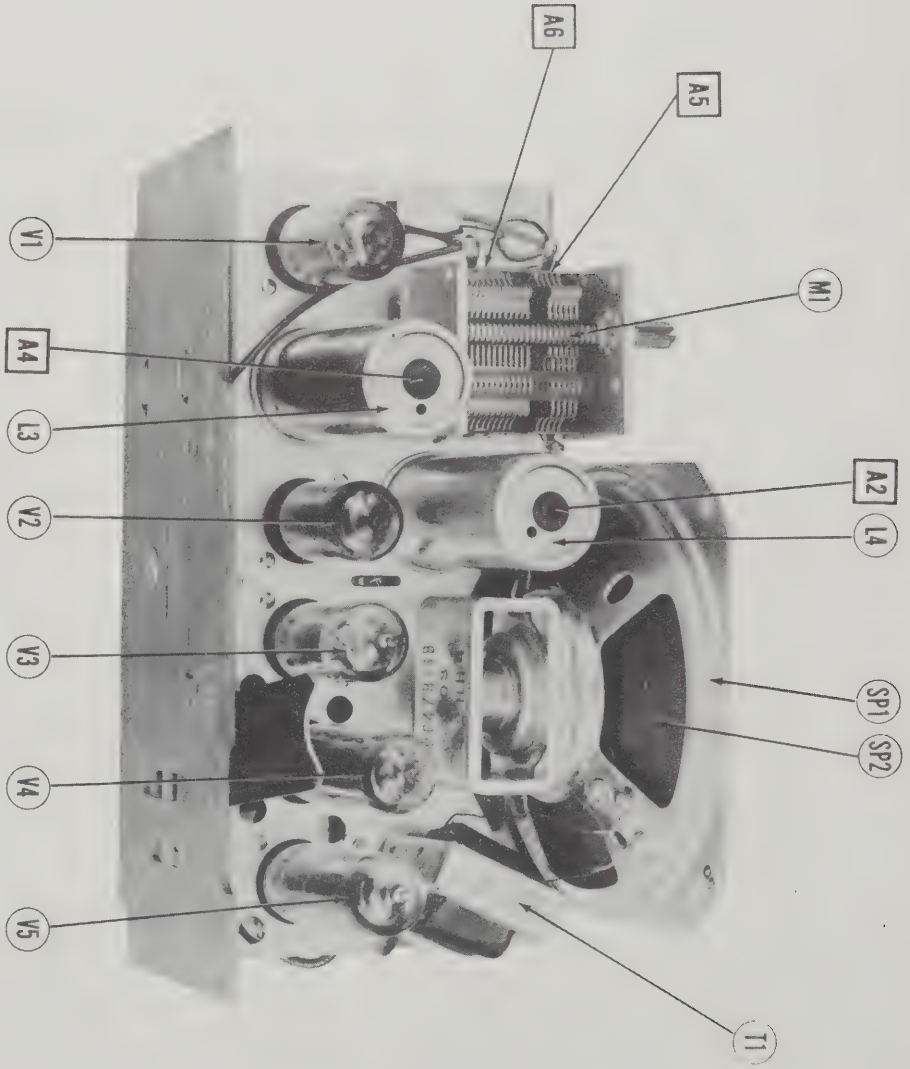
ITEM No.	RATING		REPLACEMENT DATA			INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	CLAROSTAT PART No.	
R1A	1 Meg.	½	18A478122	Q13-137	15/16-63 -Z	Volume control and Switch
B	Switch		Not Req.	76-1*	Switch SPST#	

* Attach To R1A Per Instructions.
\# Attached At Factory.

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES
	RESISTANCE	WATTS	MOTOROLA PART No.	IRC PART No.	
R2	22KΩ	½	6R6028	BTS-22K	Osc. Grid
R3	100Ω	½	6R6018	BW-½-100	IF Cathode
R4	3.3 Meg.	½	6R2118	BTS-3.3 Meg.	AVC Network
R5	10 Meg.	½	6R2109	BTS-10 Meg.	AF Grid
R6	470KΩ	½	6R6032	BTS-470K	AF Plate
R7	470KΩ	½	6R6032	BTS-470K	Output Grid
R8	150Ω	½	6R3992	BW-½-150	Output Cathode
R9	1000Ω	1	6R3953	BW-1-1000	Filter
R10	27Ω	½	6R5683		Surge Limiter

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		MOTOROLA PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2000Ω	3.2Ω	183Ω	.5Ω	25K680345	A-3876†	RO-1A†	A-3025†	† Drill One New Mtg. Hole

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V.C. IMP.		ST-113		
SP1	PM	3.2Ω	50C478138	MOD.P4-X	4A07	
	CONE DIA.	V.C. DIA.				
SP1	3-7/8"	9/16"				

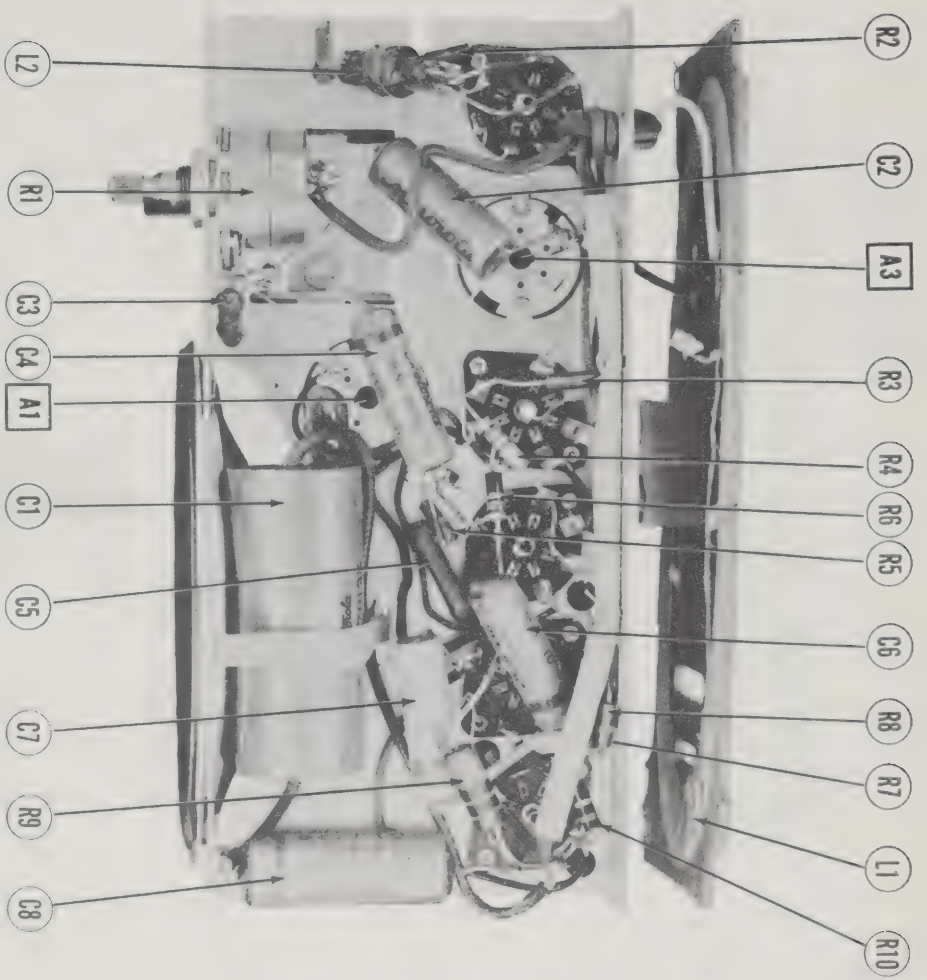
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	MOTOROLA PART No.	MEISSNER PART No.	
L1	Loop Ant.	3Ω		24B680353		
L2	Osc. Coil	1Ω	13Ω	24A680364		
L3	Input IF Trans.	14.5Ω	14.5Ω	24B482863	16-6678	
L4	Output IF	42Ω	14.5Ω	24B482865	16-6678	

MISCELLANEOUS

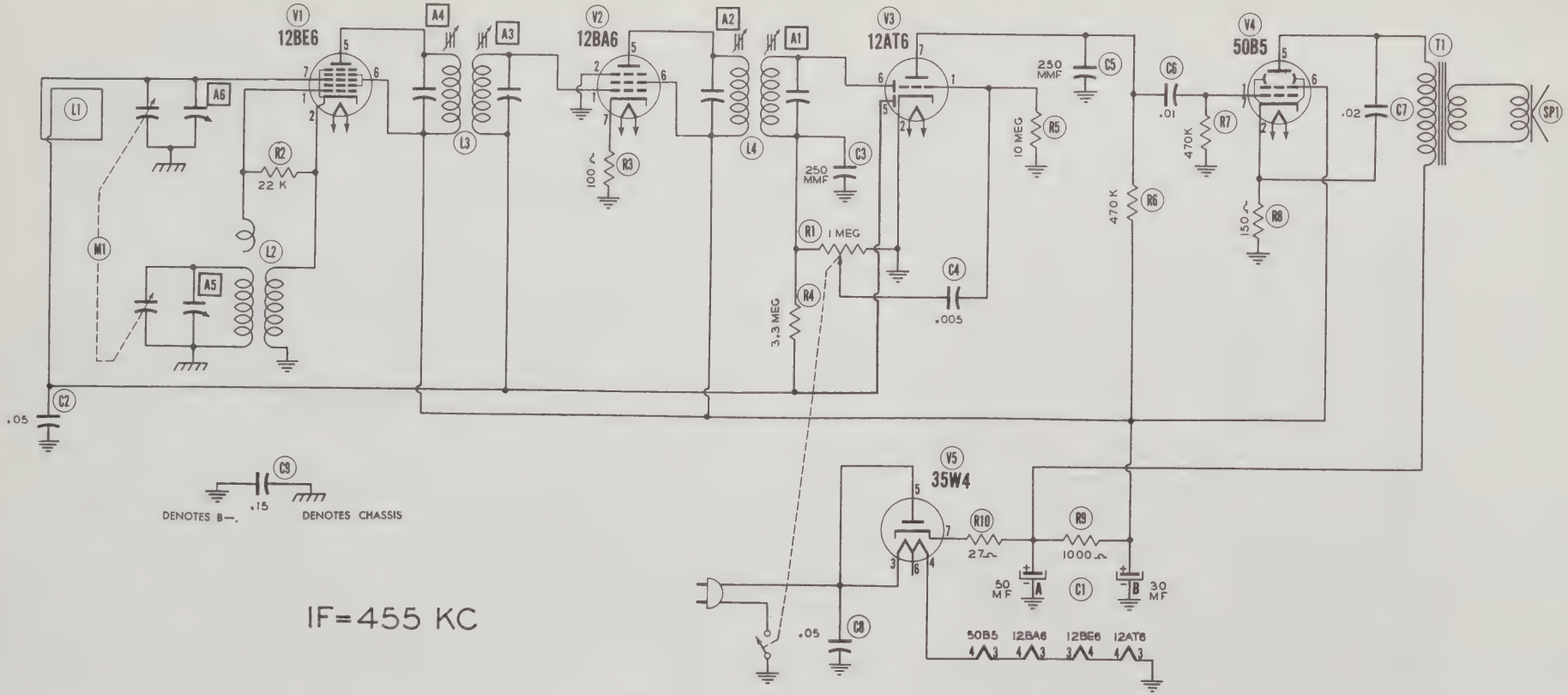
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	2 Gang Var. Cap.	19B478128	(24-387TMF, 14-200MMF)
	Cabinet	16D478068	Model 58R11A
	Cabinet	16K484338	Model 58R12A
	Cabinet	16K484340	Model 58R13A
	Cabinet	16K485161	Model 58R14A
	Cabinet	16K485162	Model 58R15A
	Cabinet	16K485163	Model 58R16A
	Knob	36B478147	Tuning (58R11A)
	Knob	36A478148	Volume (Serial)
	Knob	36K485157	Tuning (58R12A, 13A, 14A, 15A, 16A)
	Knob	36K485156	Volume (58R12A, 13A, 14A, 15A, 16A)

CHASSIS—BOTTOM VIEW



MOTOROLA MODEL 58R11A

MOTOROLA MODEL 58R11A



IF=455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-7.6 VDC	0V	24VAC	12VAC	105VDC	105VDC	-.5VDC
V 2	12BA6	-.5VDC	0V	24VAC	36VAC	105VDC	105VDC	.8VDC
V 3	12AT6	-.7VDC	0V	0V	12VAC	-1.5VDC	-.6VDC	50VDC
V 4	50B5	0V	7.2VDC	36VAC	85VAC	115VDC	105VDC	0V
V 5	35W4	125VDC	125VDC	117VAC	85VAC	117VAC	95VAC	125VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	22KΩ	1Ω	24Ω	12Ω	†1000Ω	†1000Ω	4.5 Meg.
V 2	12BA6	4.5 Meg.	0Ω	24Ω	36Ω	†1000Ω	†1000Ω	100Ω
V 3	12AT6	10 Meg.	0Ω	0Ω	12Ω	†4.5 Meg	†1 Meg.	†470KΩ
V 4	50B5	470KΩ	150Ω	36Ω	86Ω	†200Ω	†1000Ω	470KΩ
V 5	35W4	90KΩ	90KΩ	120Ω	86Ω	120Ω	90Ω	90KΩ

† Measured From Pin 7 Of V5.

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4917-11

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of + 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

REGAL MODEL
7162

REGAL MODEL
7162

REGAL MODEL 7162

TRADE NAME	Regal, Model 7162.
MANUFACTURER	Regal Electronics Corp., 605 W. 130th St., New York, N.Y.
TYPE SET	AC-DC Operated 2 Band Superheterodyne Receiver with Loop Antenna.
TUBES (SIX)	Types 12SH7 RF Amp., 12SA7GT Converter, 12SK7GT IF Amp., 12SQ7 DET-AVC-AF, 35L6GT Power Output, 35Z5GT Rectifier.
POWER SUPPLY	110-120 Volts AC-DC — RATING .26 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC — **SHORT WAVE** 5.8-18.3MC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap. fully closed and set pointer to last reference mark at low frequency end of dial.

Use isolation transformer if available. If not, connect a .1 MFD cap. in series with low side of signal generator and chassis.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to front stator of tuning gang. Low side to chassis.	455KC	BC	1650KC	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output If isolation transformer is not used reduce dummy antenna to .001 MFD to reduce hum modulation.
2.	.1MFD	"	455KC	BC	1650KC	"	A5	Adjust for minimum output
3.	.1MFD	"	1650KC	BC	1650KC	"	A6	Adjust for maximum output
4.	.1MFD	"	600KC	BC	600KC	"	A7	Adjust for maximum output
5.	200MMF	High side to antenna lead. Low side to chassis.	1500KC	BC	1500KC	"	A8	Rock gang and adjust for maximum output.
6.	.1MFD	High side to front stator of tuning gang. Low side to chassis.	18.3MC	SW	18.3MC	"	A9	Adjust for maximum output
7.	400Ω Carbon Resistor	High side to antenna lead. Low side to chassis.	17MC	SW	17MC	"	A10	Rock gang and adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

REGAL MODEL 7162

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: REGAL PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1A	RF Amp.	12SH7	12SH7	8BK	
B	RF Amp.	12SG7	12SG7	8BK	
C	RF Amp.	14A7	14A7	8V	
V2A	Converter	12SA7GT	12SA7GT	8AD	
B	Converter	14Q7	14Q7	8AL	
V3A	IF Amp.	12SK7	12SK7	8N	
B	IF Amp.	14A7	14A7	8V	
V4A	DET-AVC-AF	12SQ7	12SQ7	8Q	
B	DET-AVC-AF	14B6	14B6	8W	
V5A	Power Output	35L6GT	35L6GT	7AC	
B	Power Output	35A5	35A5	6AA	
V6A	Rectifier	35Z5GT	35Z5GT	6AD	
B	Rectifier	35Y4	35Y4	5AL	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: REGAL PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	50	150	60-101	PRSA150/50	EDL5515		DSB-2x50	TA-505	Filter Red
B	50	150		-50			-150		Filter Red
C2	.05	200		P288-05	GT2S5		ST-4-05	TM-15	Ext. Ant. Coupling Note 1
C3	.05	600		P688-05	GT6S5		ST-6-05	TM-15	AVC Filter
C4	110			1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	RF Coupling Note 2
C5	.005	600		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Tuning Cap Isolation
C6	.05	400		P488-05	GT4S5		ST-4-05	TM-15	Osc. Anode Bypass
C7	.05	600		P688-05	GT6S5		ST-6-05	TM-15	RF Bypass
C8	.05	600		P688-05	GT6S5		ST-6-05	TM-15	AVC Filter
C9	100	500		1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Diode Filter
C10	220	500		1468-0002	5W5T2	GP2K-200	MO.5-32	1FM-325	Diode Filter Note 3
C11	.005	600		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Audio Coupling
C12	220	500		1468-0002	5W5T2	GP2K-200	MO.5-32	1FM-32	AF Plate Bypass
C13	.01	600		P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	Audio Coupling
C14	.01	600		P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	Output Plate Bypass
C15	.05	600		P688-05	GT6S5		ST-6-05	TM-15	Line Filter
C16	10	500		1469-00001	5R5Q1		MOS.5-41	MS-41	Fixed Trimmer Note 4

Note 1. Some Models Use .004MFD In This Application.
Note 2. Some Models Use 250MMF In This Application.
Note 3. Some Models Use 100MMF In This Application.
Note 4. Not Used In All Models.

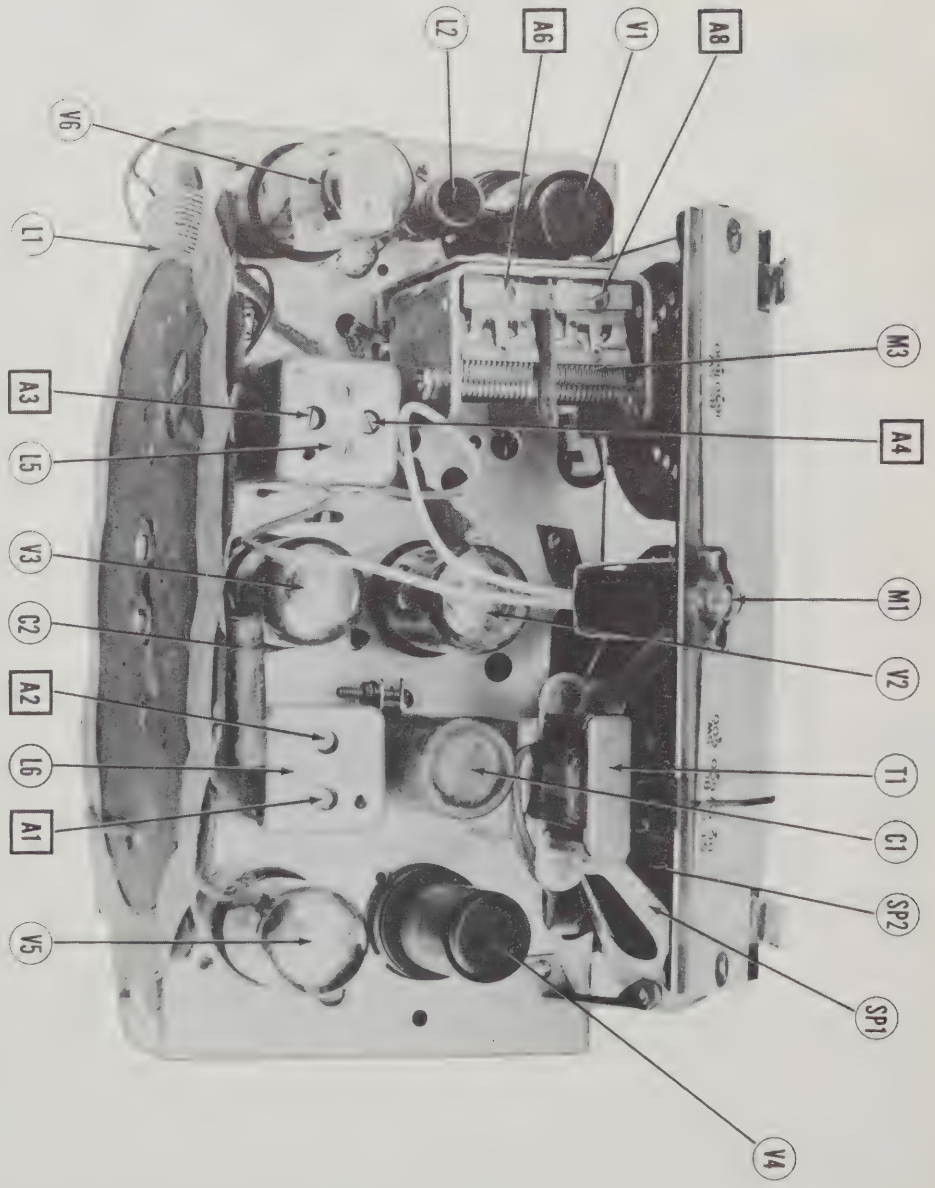
CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	20-101	Q13-133	AM-60-2	Volume control
B	Shaft			Not Req.	KSS-3	Attach to R1A per instructions
C	Switch			76-1	SW-A	Attach to R1A per instructions

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REGAL PART No.	IRC PART No.	IDENTIFICATION CODES
R2	220KΩ	½		BTS-220K	AVC Network
R3	4700Ω	½		BTS-4700	RF Plate
R4	100KΩ	½		BTS-100K	Conv. Grid
R5	22KΩ	½		BTS-22K	Osc. Grid
R6	50Ω	½		BW-½-50	Parasitic Suppressor
R7	1000Ω	½		BTS-1000	Conv. Screen
R8	2.2 Meg.	½		BTS-2.2 Meg	AVC Network
R9	47KΩ	½		BTS-47K	Diode Filter
R10	10 Meg.	½		BTS-10 Meg.	AF Grid
R11	250KΩ	½		BTS-250K	AF Plate
R12	470KΩ	½		BTS-470K	Output Grid
R13	150Ω	½		BW-½-150	Output Cathode
R14	1000Ω	2		BW-2-1000	Filter
R15	25	1			Rectifier Buffer

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		REGAL PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	2100Ω	3.1Ω	140Ω	.5Ω	60-101	A-3332	RO-2*	A-3025	*Drill New Mtg. Holes

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA				INSTALLATION NOTES
			REGAL PART No.	JENSEN PART No.	QUAM PART No.		
	FIELD	V.C. IMP.		ST-105†			
SP1	PM	3.1Ω	110-101	MOD.P5-X	5A07†		†Remount output Transformer
	CONE DIA.	V.C. DIA.					
SP2	4-3/4"	9/16"					

R F COILS

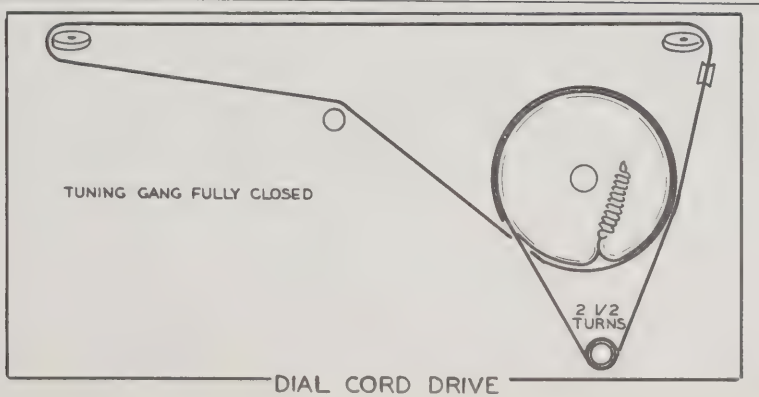
ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	REGAL PART No.	MEISSNER PART No.	
L1	Loop Ant.	.1Ω	1.2Ω	30-107		
L2	SW Ant.Coil	.3Ω	0Ω	30-111		
L3	Wave Trap	49Ω		30-106		
L4A	BC Osc.Coil	5Ω		30-112		
B	SW Osc.Coil	0Ω				
L5	Input IF	15Ω	15Ω	30-104	16-6658	
L6	Output IF	15Ω	15Ω	30-105	16-6660	

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					REGAL PART No.		
M1	Bayonet	6-8V	.15	Brown			Type #47

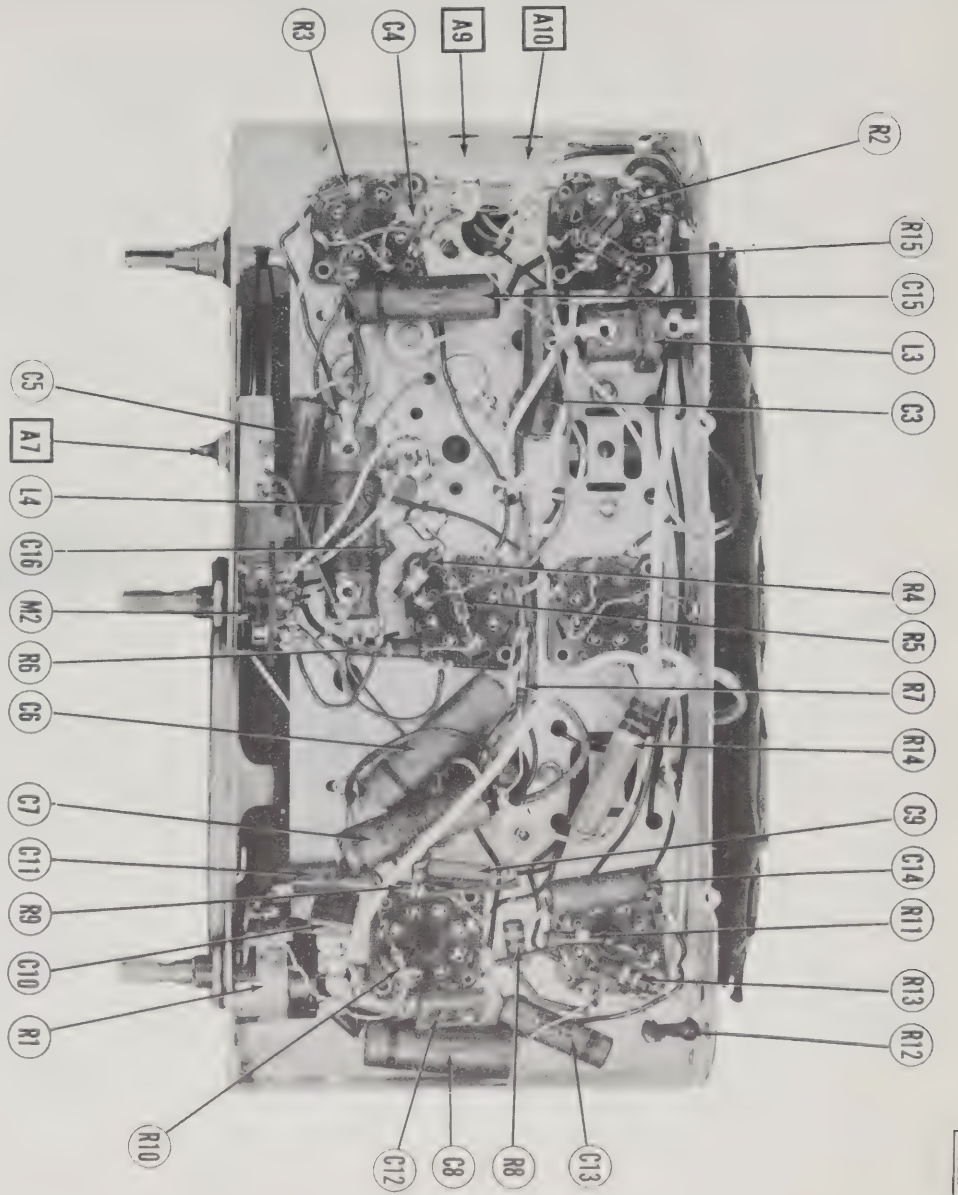
MISCELLANEOUS

ITEM No.	PART NAME	REGAL PART No.	NOTES
M2	Switch	95-102	Band
M3	2 Gang Var. Cap	40-104	(20-472MMF) Each Section
A5	Trimmer	30-106	Wave Trap Adj.
A7	Padder	40-103	BC Osc. Adj.
A9	Trimmer	40-105	SW Osc. Adj.
A10	Trimmer	40-105	SW Ant. Adj.

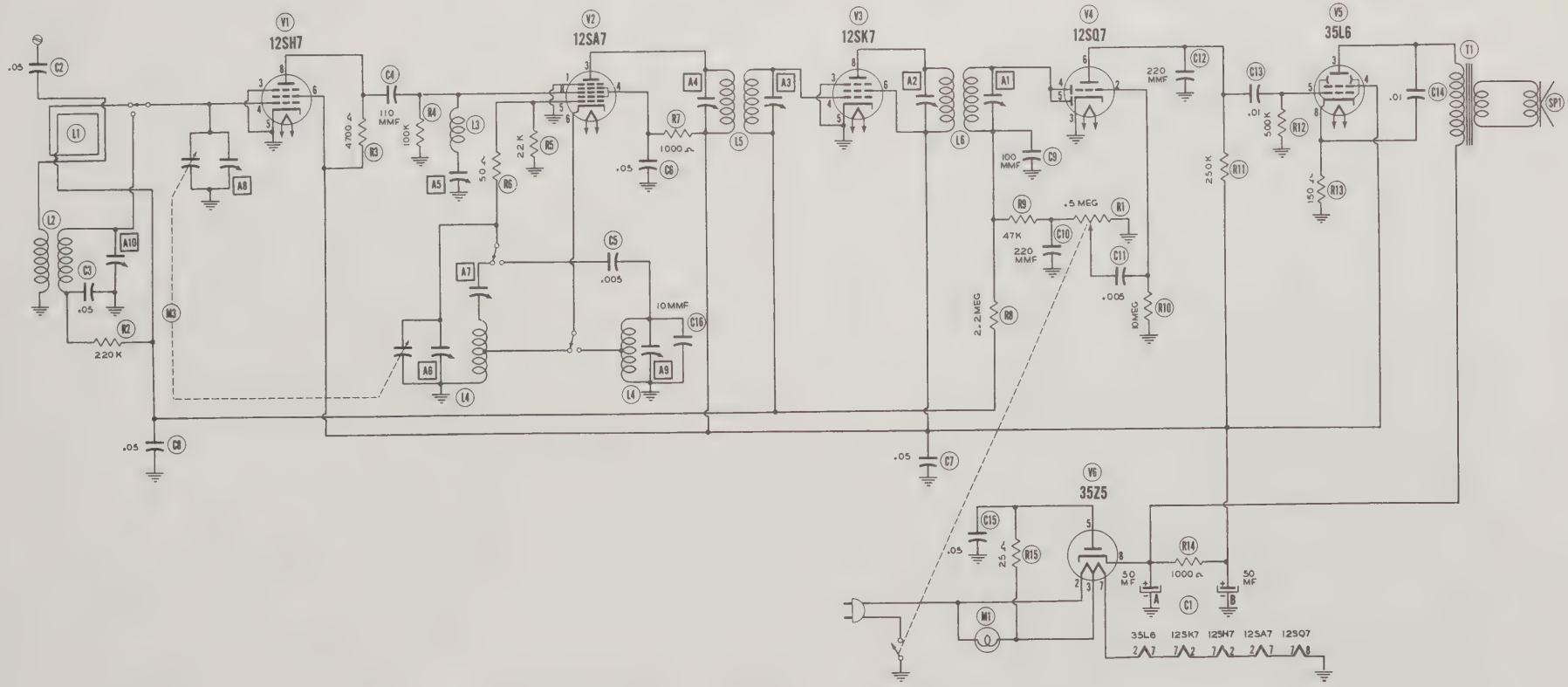


DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW



REGAL MODEL 7162



IF=455 KC

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SH7	0V	25VAC	0V	-.1VDC	0V	85VDC	37VAC	65VAC
V 2	12SA7GT	0V	25VAC	85VDC	76VDC	§-8.2VDC	0V	12VAC	0V
V 3	12SK7GT	0V	37VAC	0V	-.1VDC	0V	85VDC	48VAC	85VDC
V 4	12SQ7	0V	-.4VDC	0V	-.1VDC	-.1VDC	40VDC	12VAC	0V
V 5	35L6GT	117VDC	85VAC	0V	85VDC	0V	-.1VDC	480VAC	5VDC
V 6	35Z5GT	-.1VDC	117VAC	112VAC	0V	110VAC	0V	85VAC	117VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	12SH7	0Ω	24Ω	0Ω	3 Meg.	0Ω	†1000Ω	36Ω	†6KΩ
V 2	12SA7GT	0Ω	24Ω	†1000Ω	†2KΩ	22KΩ	0Ω	12Ω	100KΩ
V 3	12SK7GT	0Ω	36Ω	0Ω	3 Meg.	0Ω	†1000Ω	48Ω	†1000Ω
V 4	12SQ7	0Ω	10 Meg.	0Ω	3 Meg.	3 Meg.	†250KΩ	12Ω	0Ω
V 5	35L6GT	†0Ω	85Ω	†140Ω	†1000Ω	500KΩ	3 Meg.	48Ω	150Ω
V 6	35Z5GT	3 Meg.	121Ω	116Ω	3.3 Meg.	130Ω	Inf.	85Ω	65KΩ

†Measured From Pin 8 Of V6.

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4917-12

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

TRUETONE
MODEL D1990, D1992, D2987

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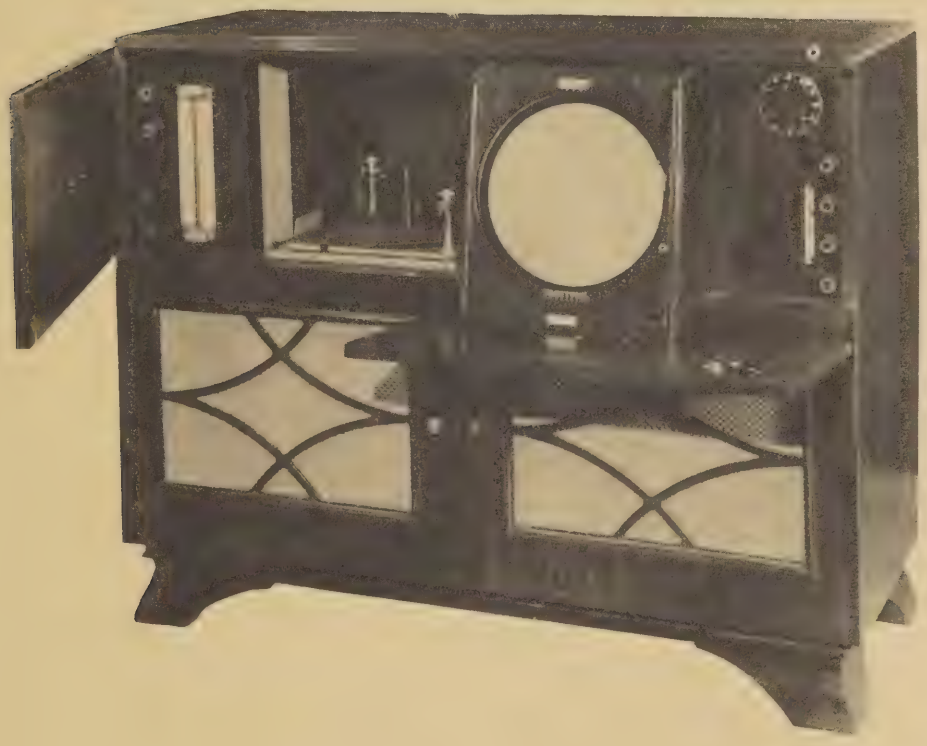
Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.



MODEL D1992

TRUETONE
MODEL D1990, D1992, D2987

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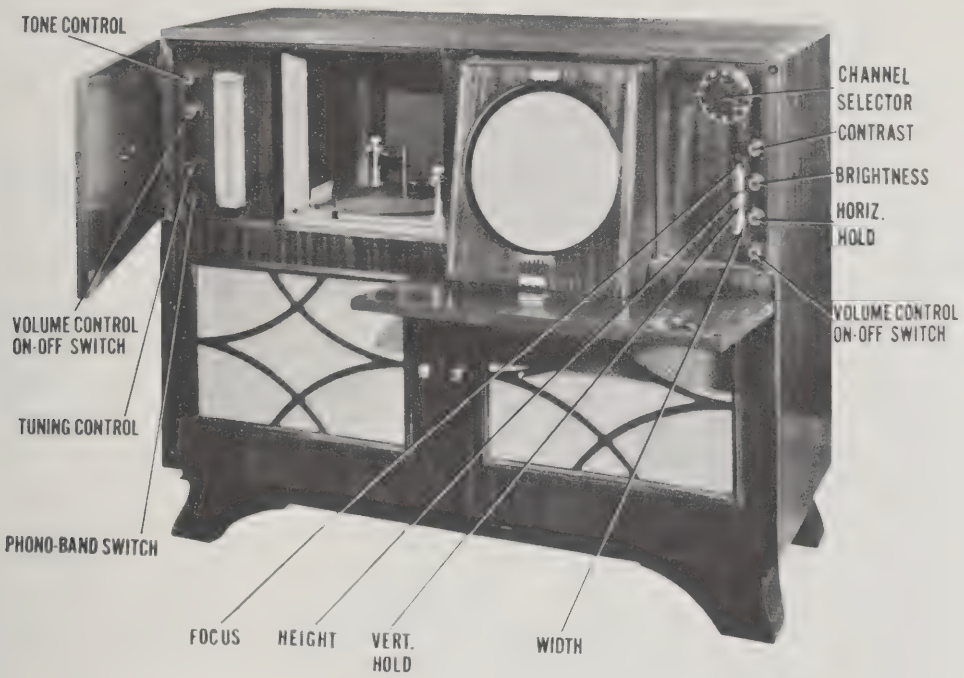
TRUETONE MODELS D1990, D1992, D2987



TRUETONE MODEL D1992

TRADE NAME	Truetone, Models D1990, D1992, D2987
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	D1990, D2987-Television Only; D1992 AM-FM-Phono-TV Receiver
TUBES	Twenty-Five-Models D1990, D2987 Thirty Two-Model D1992
POWER SUPPLY	105-125 Volts AC (DC with Polarizing relay on Models D1990 and D2987)
TUNING RANGE	TV Channels 2 through 13 AM 530-1620KC FM 88-108MC
RATING:	(TV) 1.7 Amp @ 117 Volts AC (Radio) .43 Amp @ 117 Volts AC

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TRUETONE MODELS D1990, D1992, D2987

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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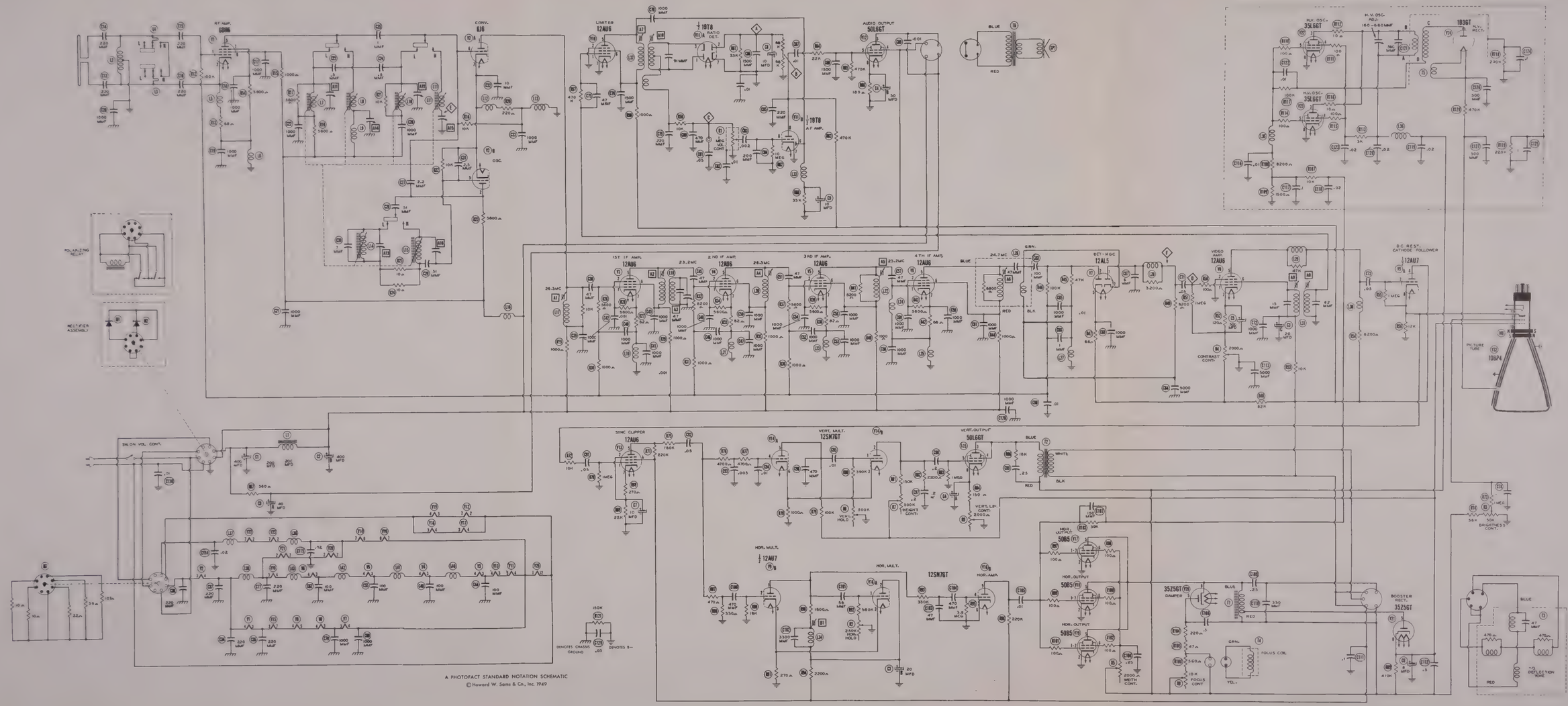
DATE 9/49 4917-13 SET #69 FOLDER #13


TRUETONE MODELS
D1990, D1992, D2987
A PHOTOFACT STANDARD NOTATION SCHEMATIC
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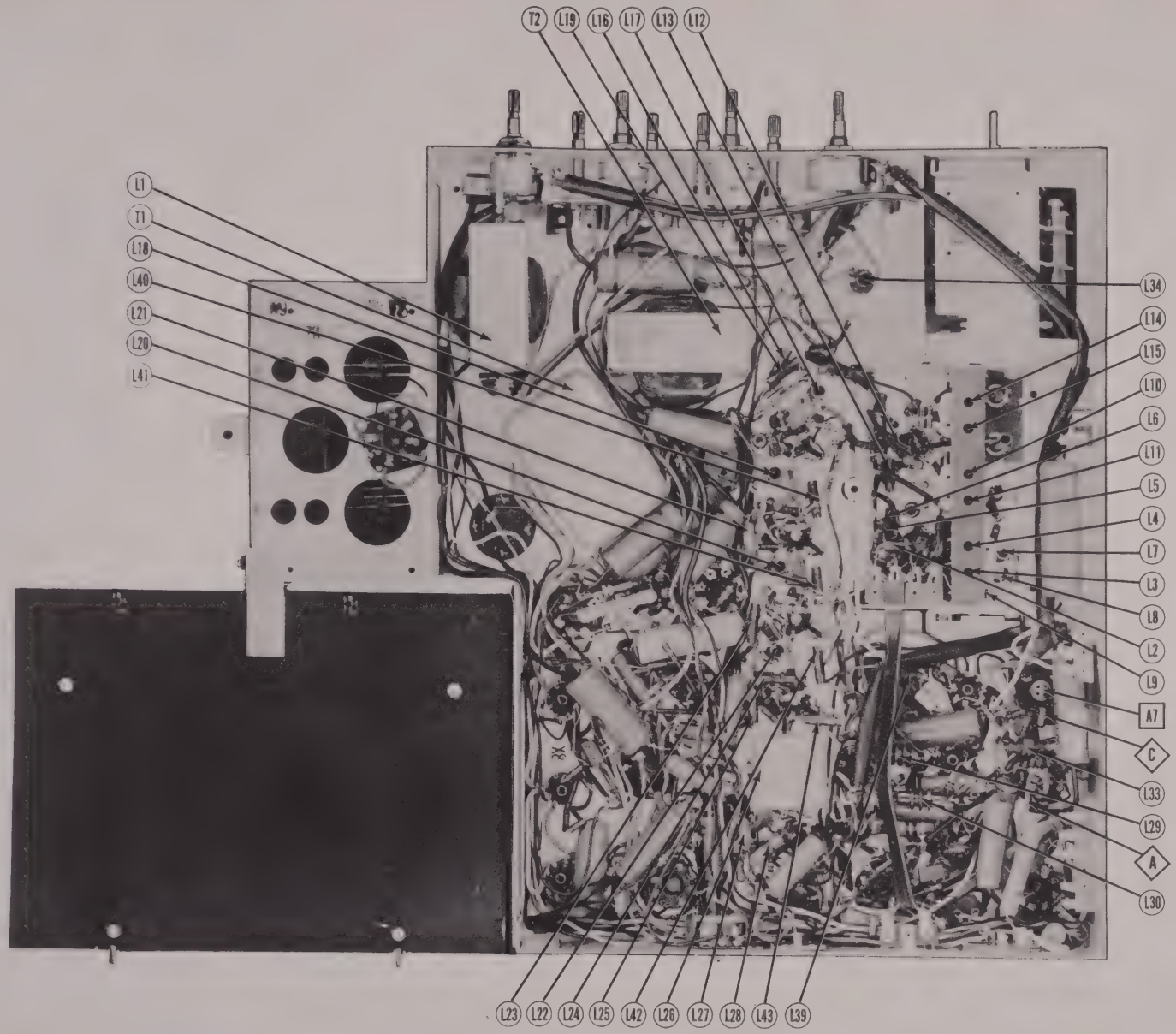
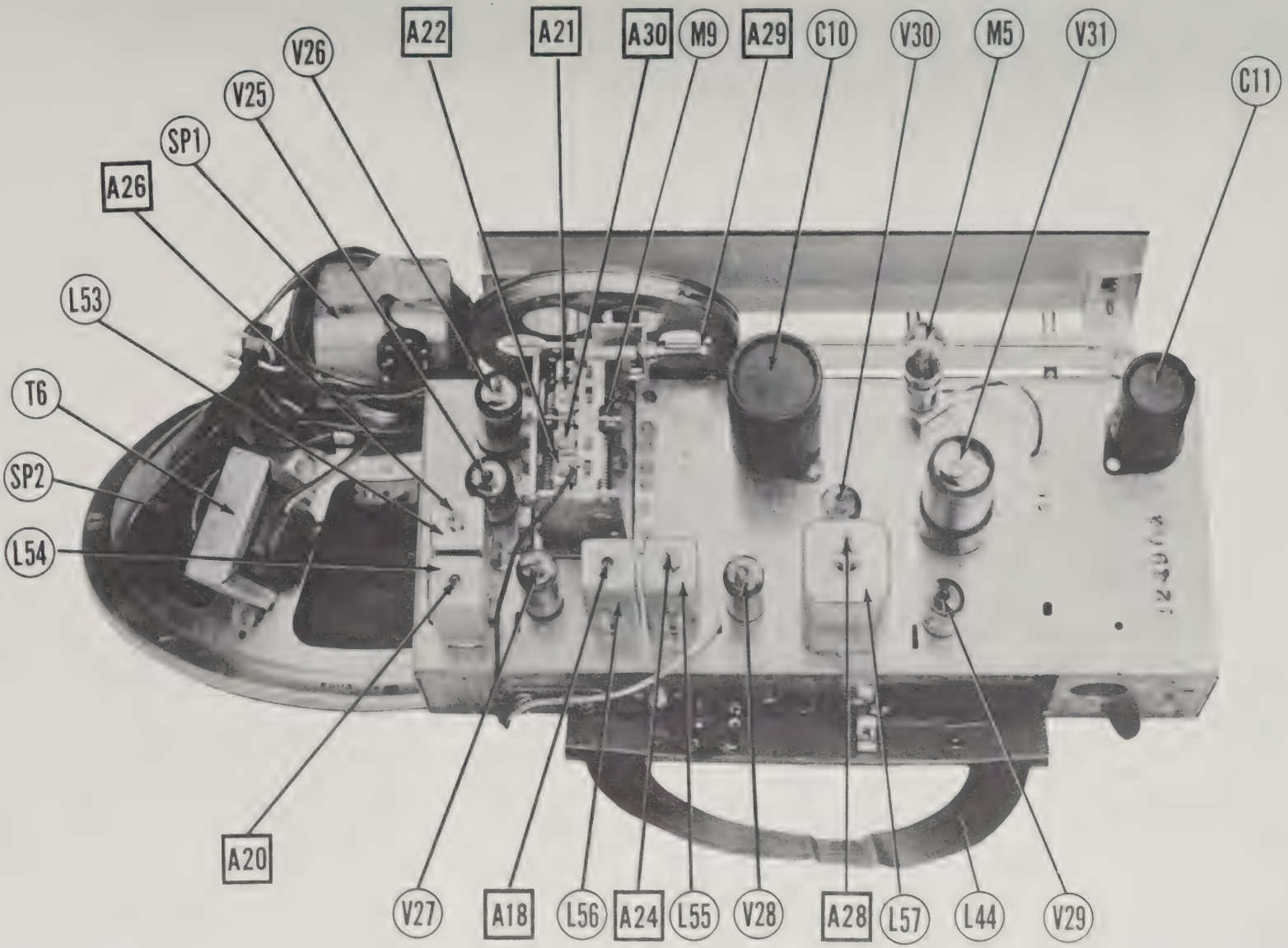
CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



AM-FM CHASSIS-TOP VIEW

TV-ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Due to the fact that this receiver incorporates a series filament string, a 10Ω 10 Watt resistor may be substituted for the picture tube filament if it is desired to align the receiver with the picture tube removed. The high voltage lead should be taped and placed so as not to present a shock hazard.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias battery to the AGC line and the positive lead to B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.		High side to ungrounded tube shield floating over converter tube (V2). Low side to tuner cover.	26.3MC	9	Across R49	A1	Adjust for maximum deflection.
2.		"	23.2MC	"	"	A2	"
3.		"	22.4MC	"	"	A3	Adjust for minimum deflection.
4.		"	26.3MC	"	"	A4	"
5.		"	23.2MC	"	"	A5	"
6.		"	24.7MC	"	"	A6	"

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
7.		High side to ungrounded tube shield floating over converter tube (V2). Low side to tuner cover.	25MC (10MC Sweep)	22.4MC 26.9MC	9	Across R49 with 10KΩ in series with the high side scope lead and 1000MMF across the scope input terminals.		Observe response curve and if necessary, slightly retouch A1 thru A6 for proper pattern and marker placement as per Fig 1.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point (A) to B-. The junction of these two resistors is alignment Point (B) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.05MFD	High side to pin 1 (Grid) of 12AU6 (V8). Low side to B-.	4.5MC (Unmod.)	9	DC Probe to Point (A) Common to B-.	A7,A8, A9	Adjust for maximum deflection.
9.	.05MFD	"	"	"	DC Probe to Point (C) Common to Point (B).	A10	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	.05MFD	High side to pin 1 (Grid) of 12AU6 (V8). Low side to B-.	4.5MC (1MC Sweep)	4.5MC	9	Vert.Amp. to Point (A) Low side to B-.	A7,A8, A9	Disconnect stabilizer cap. C8 from Point A. Adjust A7, A8, A9 for maximum amplitude and symmetry as per Fig 2.
9.	.05MFD	"	"	"	"	Vert.Amp. to Point (C) Low side to B-.	A10	Reconnect capacitor C8. Adjust A10 so 4.5MC marker is at center of pattern as per Fig 3. Slightly retouch A7 for maximum amplitude and straightness of diagonal line.

TUNER ALIGNMENT

Pre-set the trimmers to the approximate dimensions shown in Fig 4 and pre-set the slugs to the dimensions shown in Fig 5.

(A) LOW BAND ALIGNMENT

Turn the channel selector switch to channel 6 and turn the channel 6 station selector screw one turn out from its maximum "in" position.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10.	Two 125Ω carbon res.	Across antenna terminals with 125Ω in each generator lead.	85MC (10MC Sweep.	83.25MC	6	Across R49 with 10KΩ in series with high side scope lead and 1000MMF across scope input terminals.	A11,A12 A13	Adjust A11 and A12 for maximum amplitude and symmetry as per Fig 6. Adjust A13 so marker appears at 50% down on the response curve. If necessary, repeat the adjustment of A11 and A12.
11.	"	"	79MC (10MC Sweep)		5	"		Check response on all low band channels. Slight readjustment of A11 and A12 may be necessary to obtain optimum response on all low band channels.
			69MC (10MC Sweep)		4			
			63MC (10MC Sweep)		3			
			57MC (10MC Sweep)		2			
12.	"	"	57MC (10MC Sweep)	55.25MC	2	"		If the 55.25MC marker can be moved to the 50% point by the channel 2 station selector screw with the screw at least 2 turns in from its maximum "out" position, the low band is properly aligned.

TV-ALIGNMENT INSTRUCTIONS (CONT.)

(B) HIGH BAND ALIGNMENT

Turn the channel selector switch to channel 13 and turn the channel 13 station selector screw 3/4" out from its maximum "in" position.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
13.	Two 125Ω carbon res.	Across antenna terminals with 125Ω in each generator lead.	213MC (10MC Sweep)	211.25MC	13	Across R49 with 10KΩ in series with high side scope lead and 1000MMF across scope input terminals.	A14, A15, A16	Adjust A14 and A15 for maximum amplitude and symmetry as per Fig 6. Adjust A16 so marker appears at 50% down on the response curve. If necessary, repeat the adjustment of A14, and A15.
14.	"	"	207MC (10MC Sweep)		12	"		Check response on all high band channels. Slight readjustment of A14 and A15 may be necessary to obtain optimum response on all high band channels.
			201MC (10MC Sweep)		11			
			195MC (10MC Sweep)		10			
			189MC (10MC Sweep)		9			
			183MC (10MC Sweep)		8			
			177MC (10MC Sweep)		7			
15.	"	"	177MC (10MC Sweep)	175.25MC	7	"		If the 175.25MC marker can be moved to the 50% point on the response curve by the channel 7 station selector screw at least one turn in from the maximum "out" position, the high band is properly aligned.

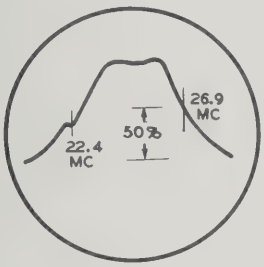


FIG. 1

FIG. 2

FIG. 3

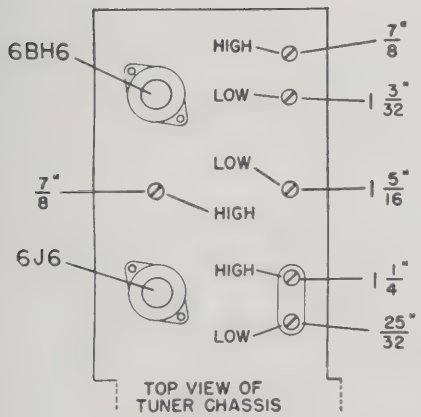


FIG. 4

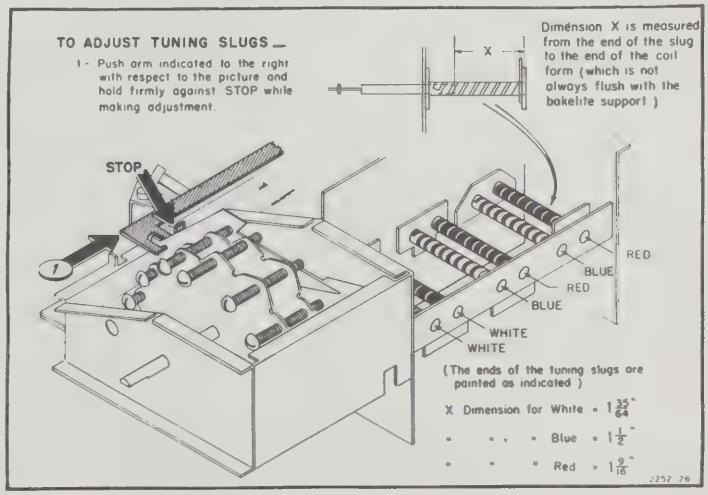

TO ADJUST TUNING SLUGS—
1 - Push arm indicated to the right with respect to the picture and hold firmly against STOP while making adjustment.
Dimension X is measured from the end of the slug to the end of the coil form (which is not always flush with the bakelite support)
X
STOP
RED
BLUE
RED
BLUE
WHITE
WHITE
(The ends of the tuning slugs are painted as indicated)
X Dimension for White = 1 35/64"
Blue = 1 1/2"
Red = 1 9/16"

FIG. 5

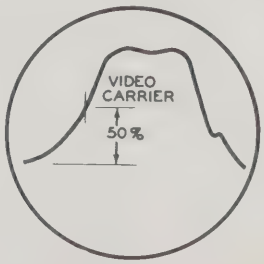


FIG. 6

TRUETONE MODELS D1990, D1992, D2987

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set dial pointer, turn the tuning gang fully closed and set the right hand edge of the pointer saddle even with the calibration indentations at the extreme right hand end of pointer saddle slide bar.

The dial calibration marks located on the pointer slide bar are as follows reading left to right (front row): extreme left hand limit, 1620KC, 1400KC, 1000KC, 600KC, 535KC or extreme right hand limit. (Rear row): extreme left hand limit, 108MC, 98MC, 90MC, 88MC, extreme right hand limit.

Use isolation transformer if available. If not connect a .1MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
16	.1MFD	High side to pin 1 (Grid) of 12BA6 (V27). Low side to B-.	455KC (400∿ Mod.)	AM (center position)	Tuning gang fully open	Across voice coil	A17, A18	Adjust for maximum output. If isolation transformer is not used reduce dummy antenna to .001MFD to reduce hum modulation.
17	.1MFD	High side to pin 7 (Grid) of 12BA7 (V26). Low side to B-.	"	"	"	"	A19, A20	Adjust for maximum output.
18	Direct	High side to AM external antenna clip. Low side to B-.	1620KC	"	1620KC	"	A21	" " " "
19	Direct	"	1400KC	"	Tune for max. output.	"	A22	" " " "

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from Point (F) to B-. The junction of these two resistors is alignment Point (H) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
20	.1MFD	High side to Point D. Low side to chassis.	10.7MC (Unmod.)	FM (fully clockwise)	Point of non-interference	DC Probe to Point (E) Common to B-.	A23, A24, A25, A26	Adjust for maximum deflection.
21	.1MFD	"	"	"	"	DC Probe to Point (F) Commom to B-.	A27	" " " "
22	.1MFD	"	"	"	"	DC Probe to Point (G) Common to Point (H)	A28	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 21 and 22.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

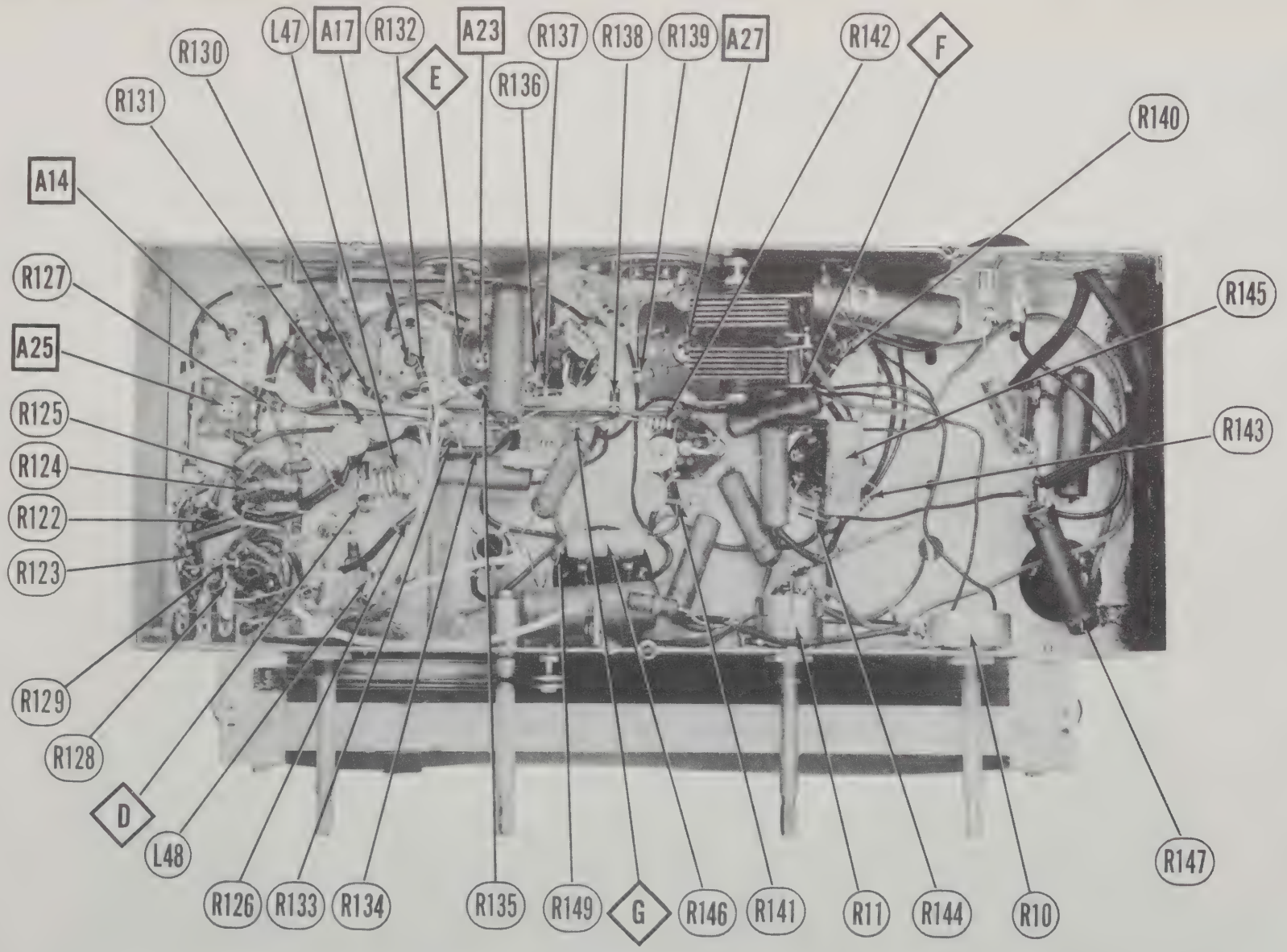
	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
20	.1MFD	High side to Point D. Low side to chassis.	10.7MC (450KC Sweep)	FM	Point of non interference	Vert.Amp. to Point (E) Low side to chassis.	A23, A24, A25, A26	Adjust for maximum amplitude and symmetry as per Fig 7.
21	.1MFD	"	"	"	"	Vert.Amp. to Point (G) Low side to chassis.	A27, A28	Adjust A28 so crossover point occurs at center of pattern as per Fig 8. Adjust A27 for maximum amplitude and straightness of crossover lines. Repeat the adjustments of A27 and A28. Continue with step 23.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
23	300Ω carbon res.	High side thru 300Ω to left hand FM antenna terminal. Low side to right hand terminal.	108MC	FM	108MC	DC Probe to Point (E) Common to B-.	A29	Adjust for maximum deflection.
24	"	"	98MC	"	Tune for max. signal	"	A30	" " " "

FIG. 7

FIG. 8



AM-FM CHASSIS-RESISTOR AND ALIGNMENT IDENTIFICATION

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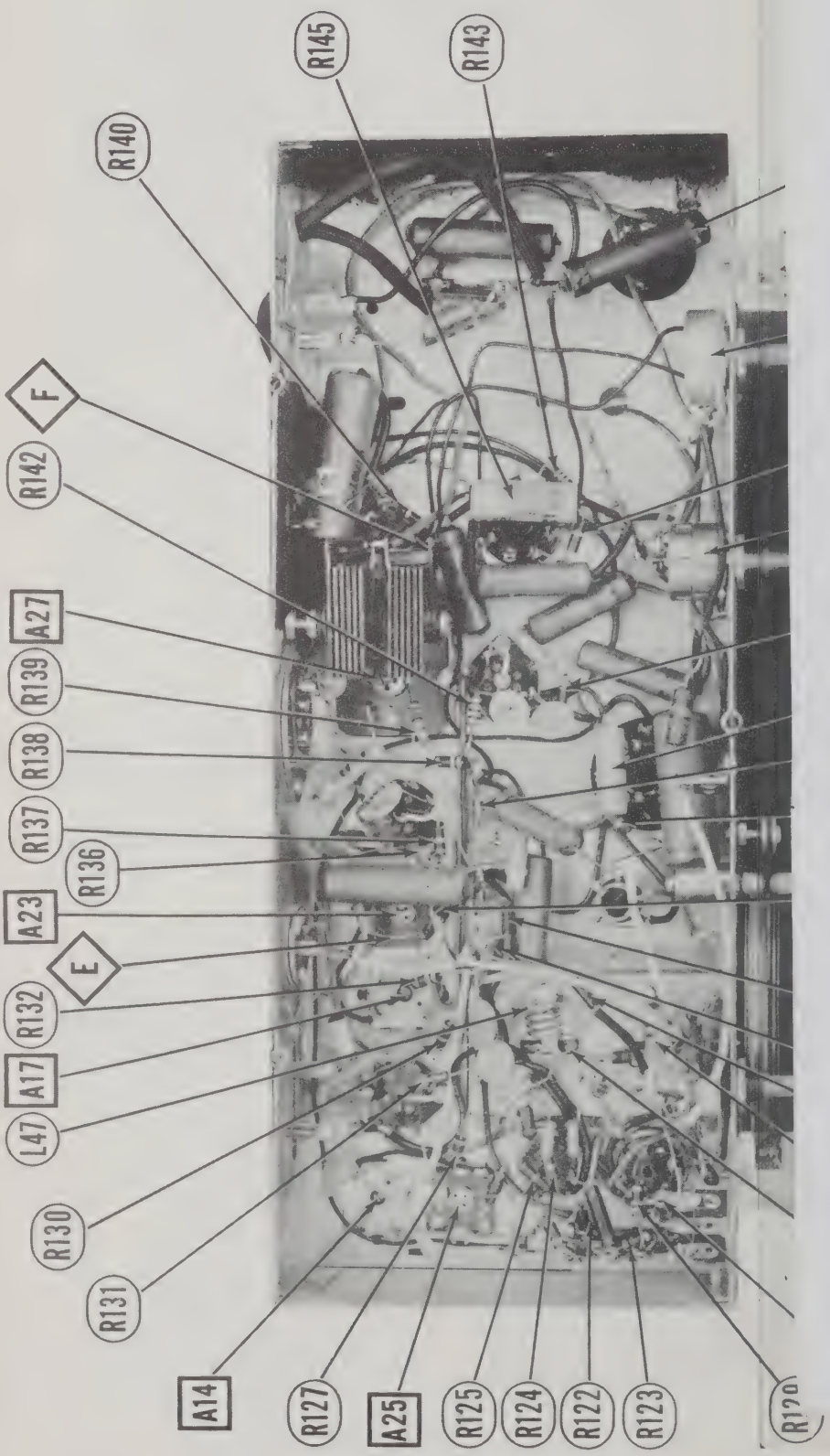
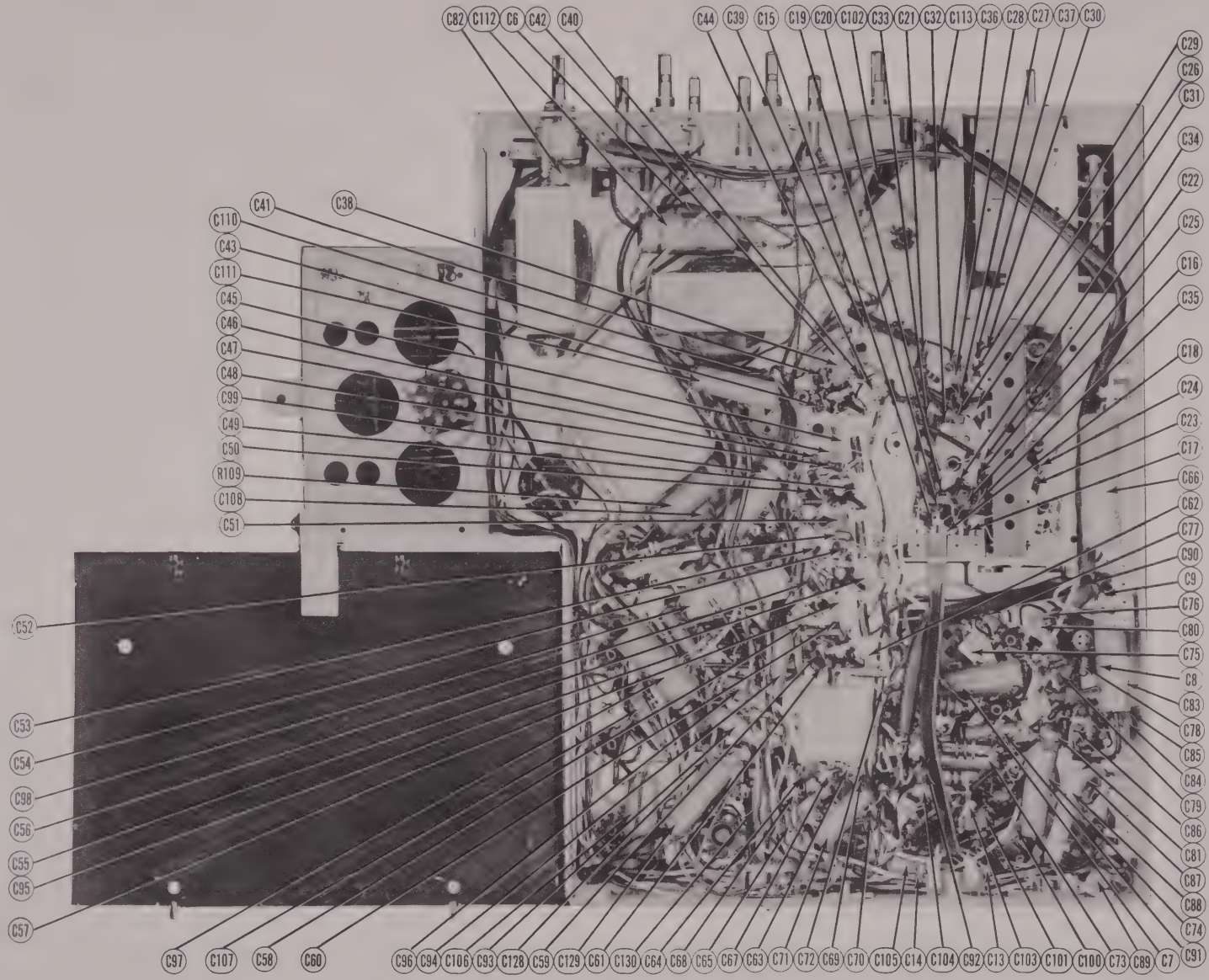
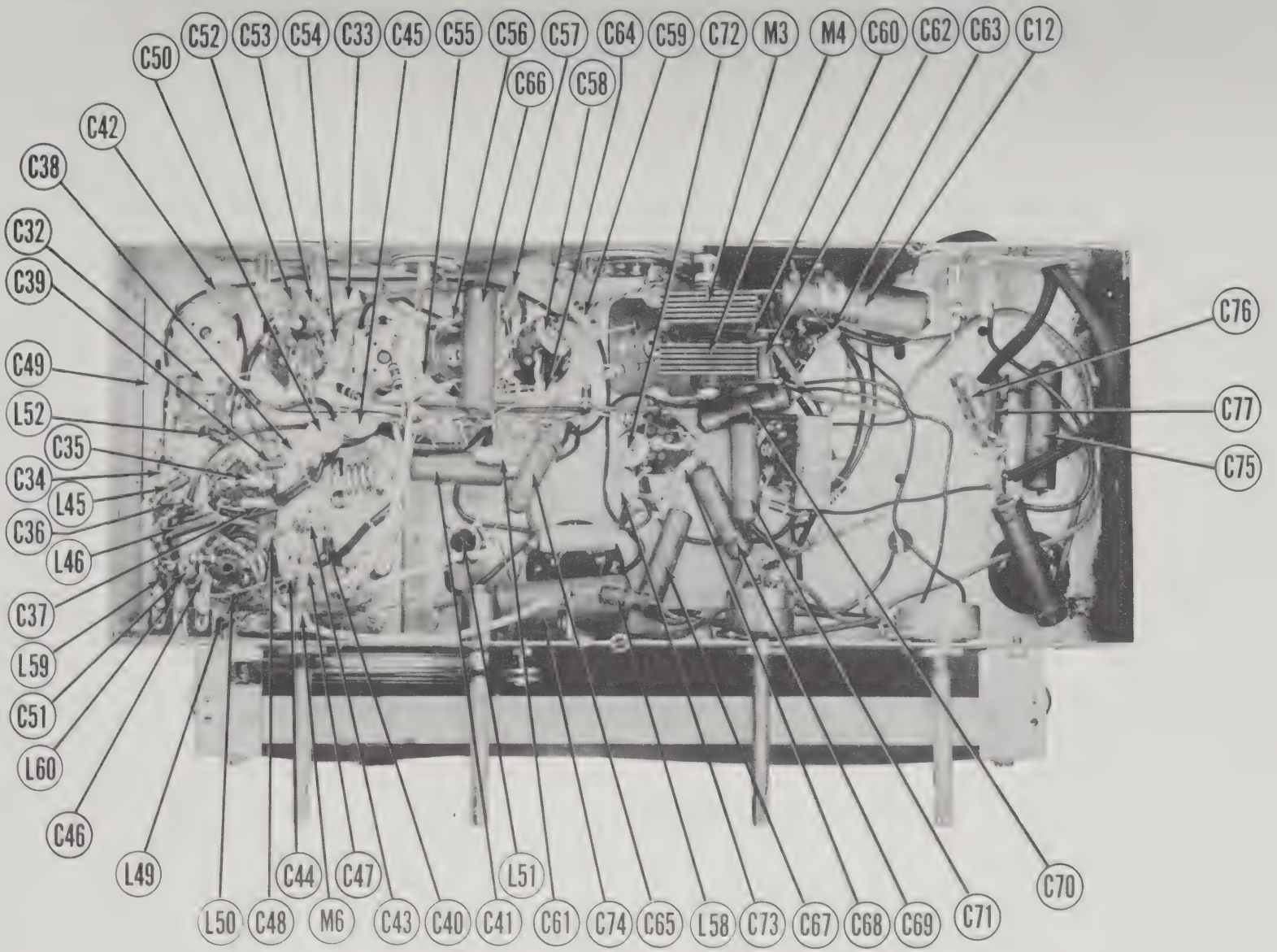


CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



AM-FM CHASSIS-CAPACITOR AND INDUCTOR IDENTIFICATION

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BH6	-.2VDC	.4VDC	95VAC	100VAC	100VDC	120VDC	0V		
V 2	6J6	120VDC	80VDC	106VAC	100VAC	§.2VDC	0V	2VDC		
V 3	12AU6	-.4VDC	.5VDC	38VAC	50VAC	115VDC	115VDC	.6VDC		
V 4	12AU6	-.3VDC	.5VDC	50VAC	60VAC	115VDC	115VDC	.6VDC		
V 5	12AU6	-.3VDC	.5VDC	60VAC	74VAC	115VDC	115VDC	.6VDC		
V 6	12AU6	0V	.5VDC	74VAC	86VAC	110VDC	110VDC	.6VDC		
V 7	12AL5	0V	-1.5VDC	18VAC	6VAC	0V	0V	-1VDC		
V 8	12AU6	.5VDC	0V	18VAC	31VAC	87VDC	100VDC	13VDC		
V 9	12AU7	95VDC	0V	1.3VAC	45VAC	31VAC	125VDC	1.8VDC	60VDC	39VAC
V 10	12AU6	-.7VDC	0V	100VAC	88VAC	117VDC	112VDC	0V		
V 11	19T8	-.4VDC	-.8VDC	-.5VDC	7VAC	25VAC	-.5VDC	0V	-.6VDC	45VDC
V 12	50L6GT	0V	0V	90VDC	120VDC	0V	0V	50VAC	7.3VDC	
V 13	12AU6	0V	0V	25VAC	39VAC	127VDC	132VDC	0V		
V 14	12SN7GT	-15VDC -20VDC	65VDC 90VDC	1VDC	0V	125VAC	1VDC	18VAC	5VAC 3.5VDC	
V 15	50L6GT	0V	50VAC	127VDC	127VDC	.1VDC	127VDC	100VAC	19VDC	
V 16	12SN7GT	0V	132VDC	0V	0V	122VDC	0V	6VAC	19VAC	
V 17	50B5	-6.5VDC	0V	50VAC	0V	120VDC	92VDC 120VDC	-6.5VDC		
V 18	50B5	-6.5VDC	0V	100VAC	50VAC	120VDC	92VDC 120VDC	-6.5VDC		
V 19	50B5	-6.5VDC	0V	45VAC	95VAC	120VDC	92VDC 120VDC	-6.5VDC		
V 20	35Z5GT	0V	65VAC	55VAC	122VDC	40VDC	65VDC	31VAC	120VDC	
V 21	35Z5GT	0V	100VAC	90VAC	62VDC	120VDC	65VAC	65VAC	245VDC	
V 22	35L6GT	0V	100VAC	120VDC	62VDC	-31VDC	-28VDC	65VAC	0V	
V 23	35L6GT	0V	65VAC	120VDC	62VDC	-31VDC	0V	30VAC	0V	
V 24	1B3GT	* DO NOT MEASURE								TOP CAP #
‡V25	12AT7	75VDC	-.1VDC	1.2VDC	47VAC	36VAC	85VDC	0V	.7VDC	40VAC
V26A	12BA7	70VDC	§-2.3 VDC	0V	36VAC	23VAC	0V	0V	0V	75VDC
‡ V26B	12BA7	85VDC	§-.1VDC	0V	36VAC	23VAC	0V	0V	0V	85VDC
V27	12BA6	-.1VDC	0V	47VAC	57VAC	85VDC	85VDC	.6VDC		
‡V28	12AU6	-.1VDC	-.1VDC	57VAC	70VAC	85VDC	85VDC	.4VDC		
‡V29	12AL5	-.7VDC	-.4VDC	0V	11VAC	0V	0V	-.9VDC		
V30	12AV6	-.5VDC	0V	23VAC	11VAC	0V	-.6VDC	55VDC		
V31	50L6GT	0V	70VAC	210VDC	90VDC	0V	0V	117VAC	4.7VDC	
V32	10BP4	0V	0V	PIN 10 240VDC	PIN 11 60VDC	PIN 12 6VAC				

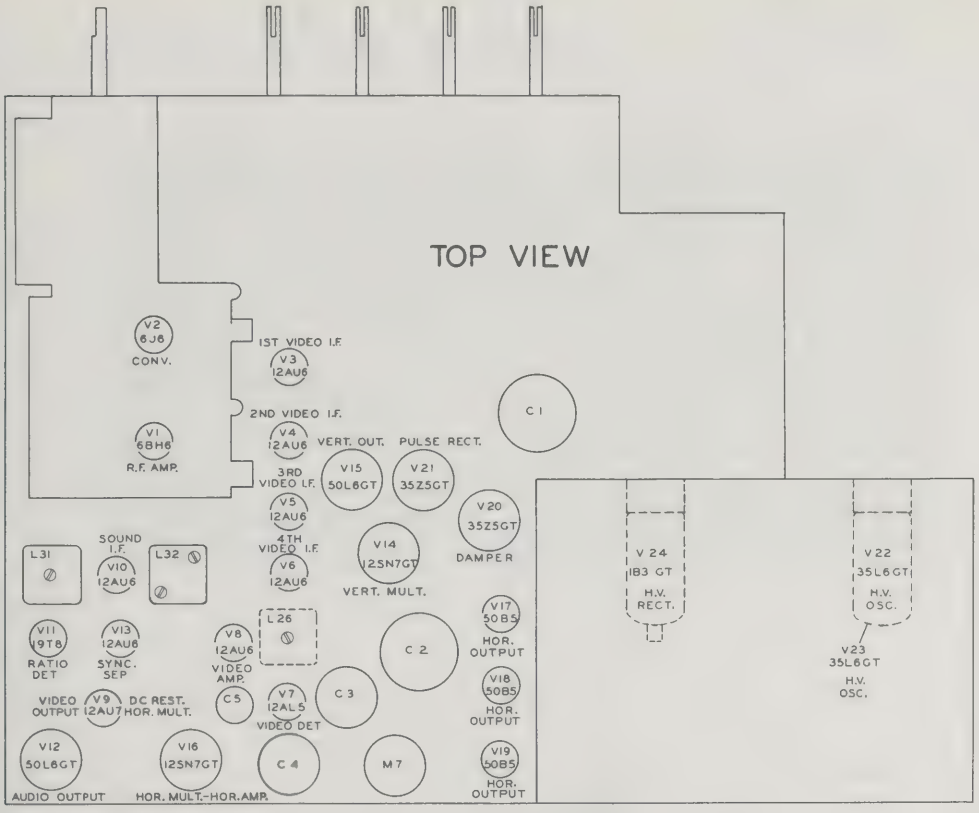
§TAKEN WITH VACUUM TUBE VOLTMETER.

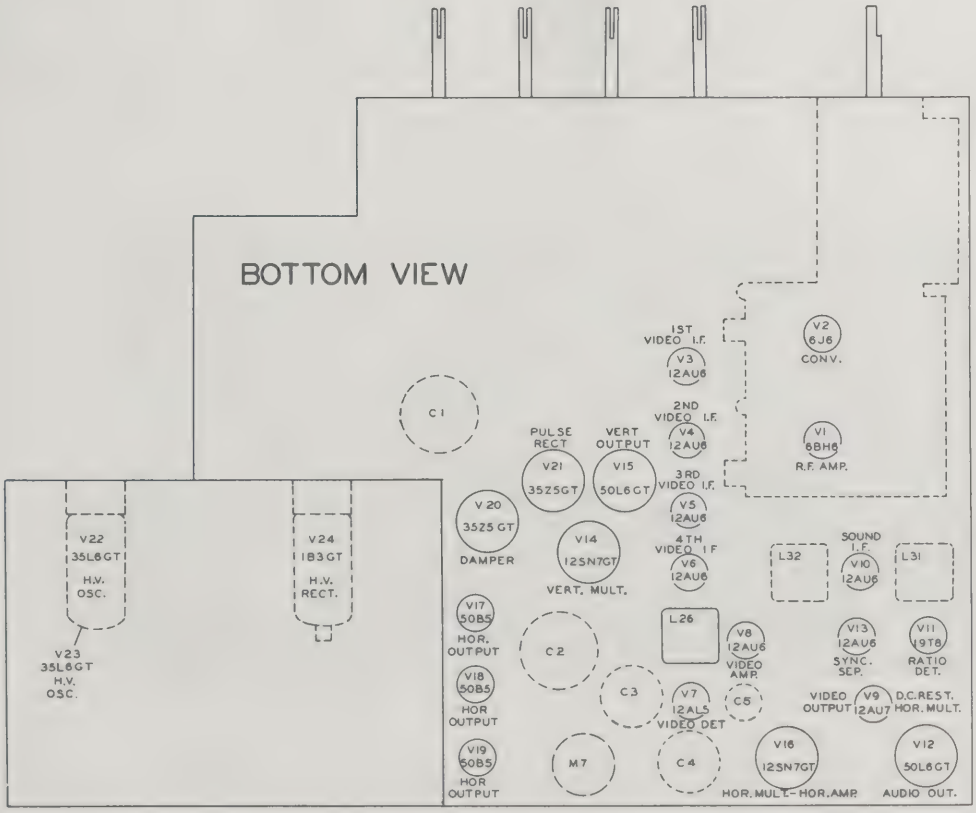
RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BH6	247KΩ	68Ω	28Ω	25Ω	†5.5KΩ	†1000Ω	5.5KΩ		
V 2	6J6	†1000Ω	†5.5KΩ	26Ω	25Ω	10KΩ	10KΩ	220Ω		
V 3	12AU6	150KΩ	5.5KΩ	24Ω	29Ω	†1000Ω	†1000Ω	82Ω		
V 4	12AU6	150KΩ	5.5KΩ	29Ω	32Ω	†1000Ω	†1000Ω	82Ω		
V 5	12AU6	150KΩ	5.5KΩ	32Ω	32Ω	†1000Ω	†1000Ω	82Ω		
V 6	12AU6	3Ω	5.5KΩ	32Ω	30Ω	†1000Ω	†1000Ω	68Ω		
V 7	12AL5	4Ω	47KΩ	13Ω	1.5Ω	150Ω	Inf.	8KΩ		
V 8	12AU6	1 Meg.	0Ω	13Ω	24Ω	†8.5KΩ	†10KΩ	2KΩ		
V 9	12AU7	†4KΩ	18KΩ	270Ω	30Ω	24Ω	†10Ω	1 Meg.	12KΩ	25Ω
V 10	12AU6	470KΩ	0Ω	25Ω	30Ω	†1000Ω	†1000Ω	0Ω		
V 11	19T8	1 Meg.	33KΩ	1 Meg.	1.5Ω	17Ω	33KΩ	0Ω	10 Meg.	†470KΩ
V 12	50L6GT	Inf.	0Ω	†900Ω	†10Ω	470KΩ	470KΩ	34Ω	180Ω	
V 13	12AU6	1 Meg.	22KΩ	17Ω	24Ω	†220KΩ	†10Ω	22KΩ		
V 14	12SN7GT	1 Meg. 480KΩ	♦640KΩ ♦170KΩ	1000Ω	10KΩ	♦100KΩ	1000Ω	16Ω	10Ω	
V 15	50L6GT	Inf.	34Ω	♦470KΩ	♦470KΩ	1 Meg.	20KΩ	34Ω	2KΩ 150Ω	
V 16	12SN7GT	600KΩ	†2KΩ	270Ω	4 Meg.	†220KΩ	0Ω	1.5Ω	10Ω	
V 17	50B5	50KΩ	0Ω	32Ω	0Ω	†42Ω	†2KΩ †120Ω	50KΩ		
V 18	50B5	50KΩ	0Ω	34Ω	32Ω	†42Ω	†2KΩ †120Ω	50KΩ		
V 19	50B5	50KΩ	0Ω	30Ω	35Ω	†42Ω	†2KΩ †120Ω	50KΩ		
V 20	35Z5GT	Inf.	32Ω	30Ω	†10Ω	†800Ω	†520Ω	16Ω	20KΩ	
V 21	35Z5GT	Inf.	25Ω	28Ω	†580Ω	†13Ω	0Ω	32Ω	200KΩ	
V 22	35L6GT	Inf.	58Ω	†42Ω	†3KΩ	10KΩ	10KΩ	42Ω	0Ω	
V 23	35L6GT	Inf.	42Ω	†42Ω	†3KΩ	10KΩ	Inf.	16Ω	0Ω	
V 24	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP 110KΩ
‡V25	12AT7	♦5KΩ	150KΩ	680Ω	32Ω	28Ω	♦5KΩ	0Ω	220Ω	30Ω
V26A	12BA7	♦5KΩ	22KΩ	1Ω	28Ω	20Ω	0Ω	5.5 Meg.	0Ω	♦5KΩ
‡ V26B	12BA7	♦5KΩ	22KΩ	1.5Ω	28Ω	20Ω	0Ω	0Ω	0Ω	♦5KΩ
V27	12BA6	1.5 Meg	0Ω	32Ω	33Ω	♦5KΩ	♦5KΩ	68Ω		
‡V28	12AU6	150KΩ	220KΩ	33Ω	32Ω	♦5KΩ	♦5KΩ	68Ω		
‡V29	12AL5	Inf.	Inf.	0Ω	12Ω	0Ω	Inf.	22KΩ		
V30	12AV6	6.8 Meg.	0Ω	20Ω	12Ω	0Ω	1.5 Meg.	♦470KΩ		
V31	50L6GT	Inf.	32Ω	♦1000Ω	♦4.5KΩ	470KΩ	0Ω	3Ω	150Ω	
V32	10BP4	1.5Ω	PIN 10 ♦0Ω	PIN 11 †1 Meg.	PIN 12 0Ω					

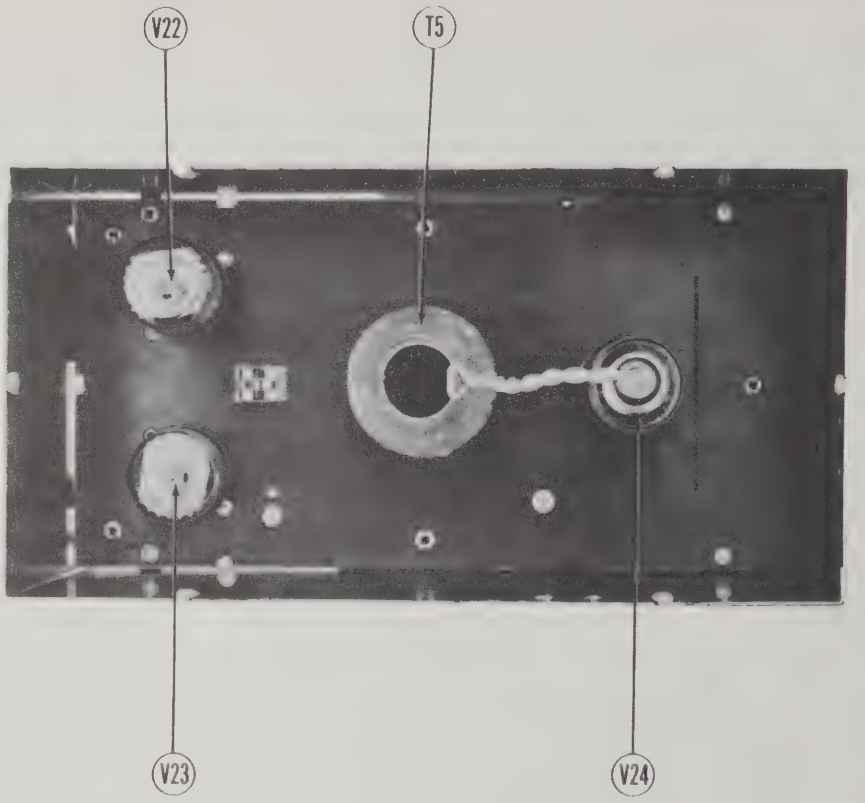
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.

† Measured From Output Of M1 And M2.
▲ Reading Taken With Selector Sw. Set On Channel 4.
♣ Measured From Pin 8 Of V21.
♦ Measured From Output Of M3.
‡ Taken In FM Position.

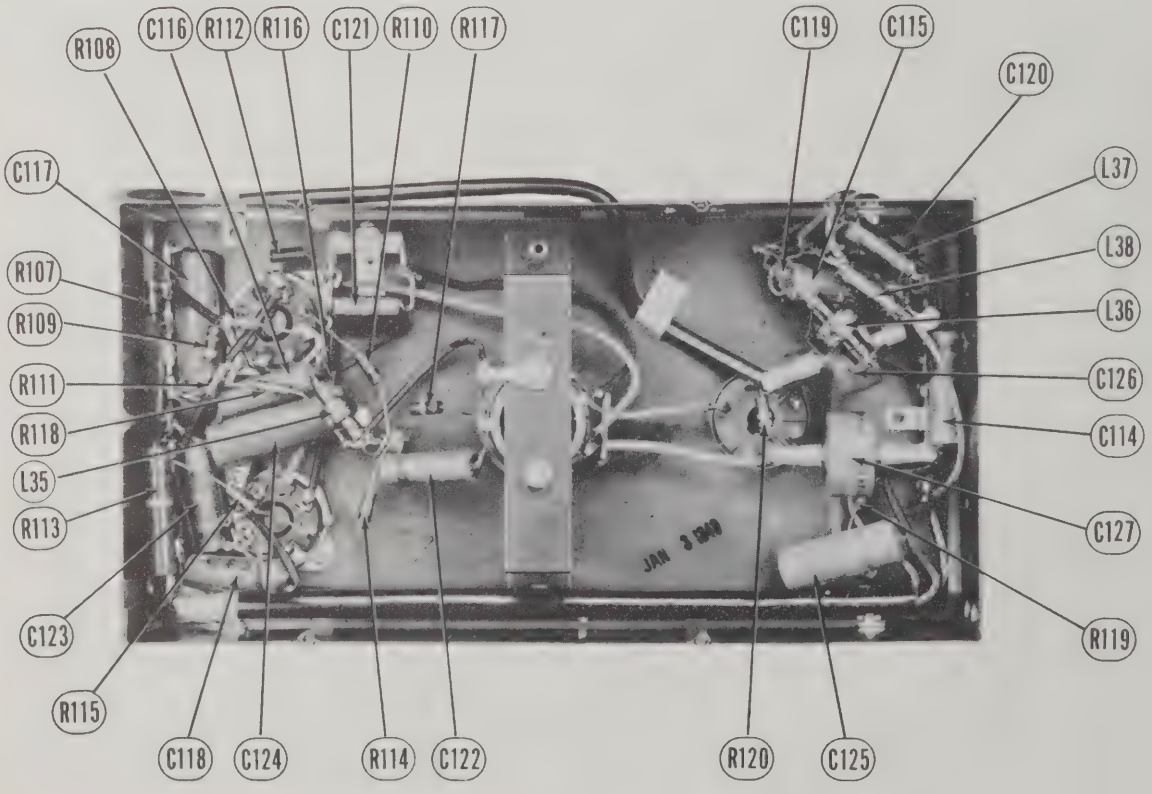




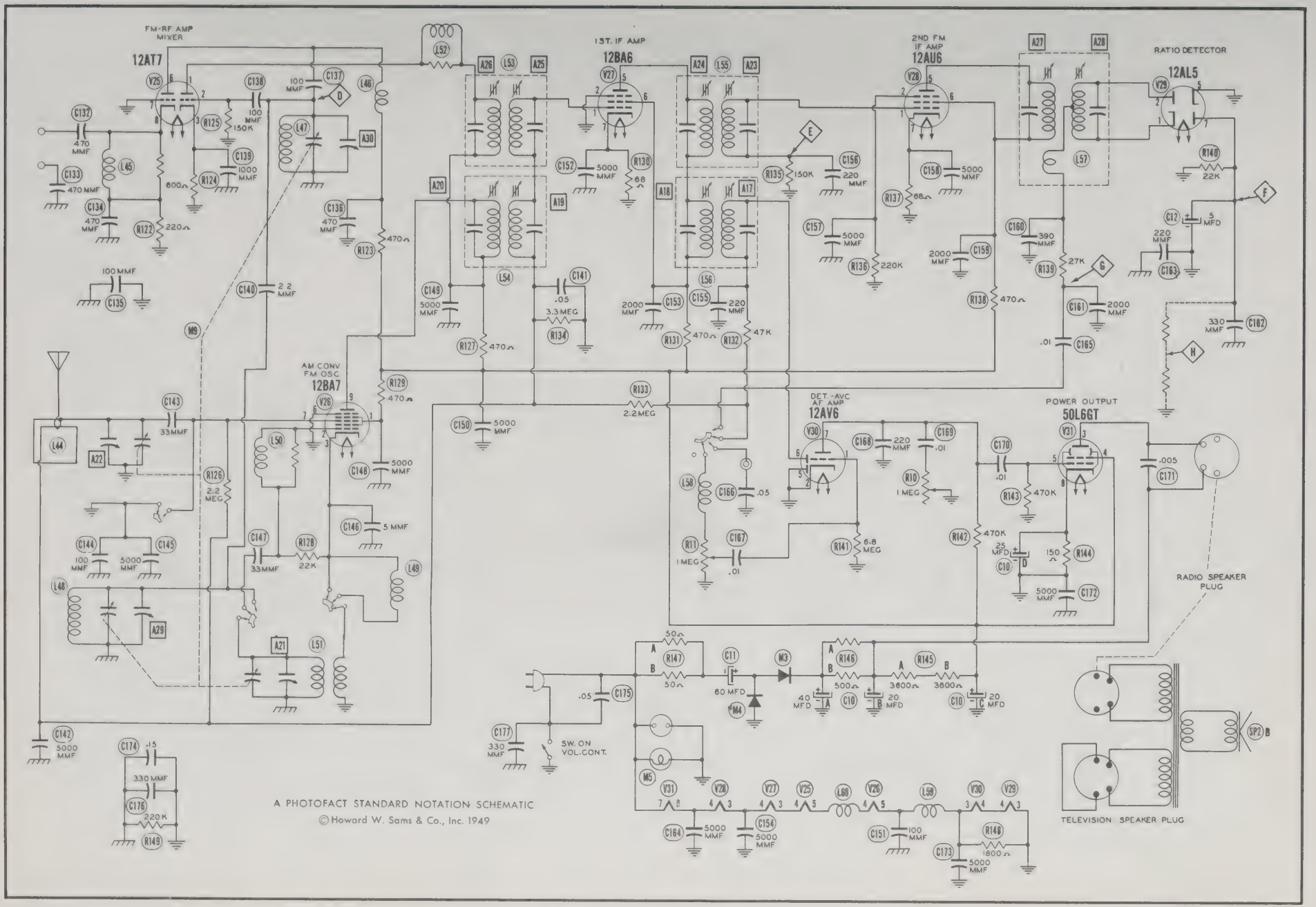
TUBE PLACEMENT CHART

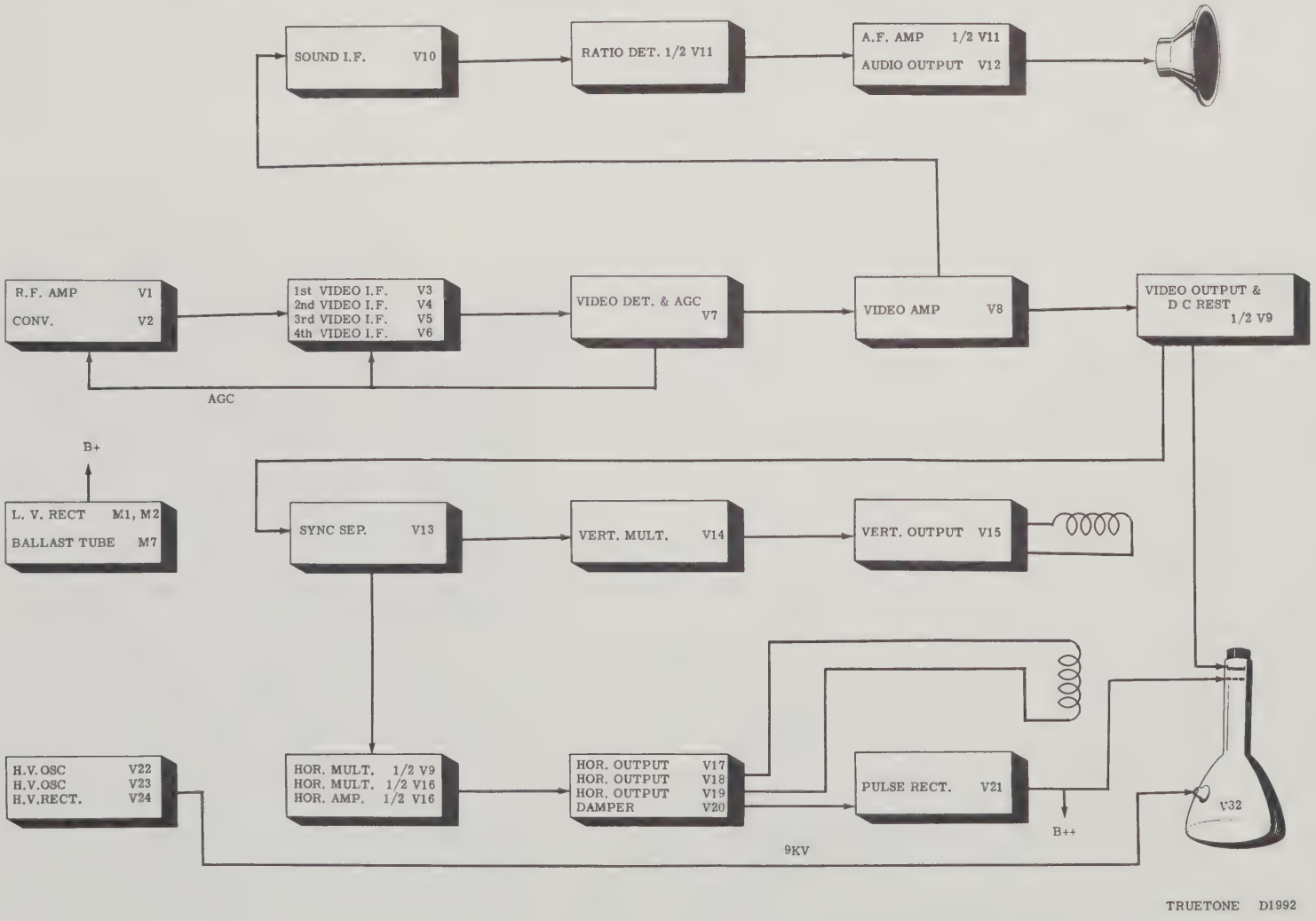


HIGH VOLTAGE SUPPLY - TOP VIEW



HIGH VOLTAGE SUPPLY - BOTTOM VIEW


FM-RF AMP MIXER
12AT7
1ST. IF AMP
12BA6
2ND FM IF AMP
12AU6
RATIO DETECTOR
12AL5
AM CONV FM OSC
12BA7
DET.-AVC AF AMP
12AV6
POWER OUTPUT
50L6GT
RADIO SPEAKER PLUG
TELEVISION SPEAKER PLUG
SW. ON VOL.CONT.
A PHOTOFACT STANDARD NOTATION SCHEMATIC
©Howard W. Sams & Co., Inc. 1949



BLOCK DIAGRAM

DISASSEMBLY INSTRUCTIONS

1. Remove 5 push-on type knobs from TV controls.
2. Remove 7 phillips head screws holding left rear cover.
3. Remove picture tube base socket.
4. Remove tape and clamps from wires.
5. Remove focus coil plug from TV chassis.
6. Remove screw holding speaker plug in TV chassis. Remove speaker plug.
7. Disconnect wire grounding picture tube to chassis.
8. Remove HV lead from picture tube.
9. Remove plug from middle of TV chassis.
10. Remove plug from front corner of TV chassis.
11. Pull out power plug from socket near bottom of left side of cabinet.
12. Remove 2 phillips head screws holding HV cover to cabinet.
13. Remove screw from bottom center of TV chassis.
14. Push up and back to remove TV chassis.
15. Remove 4 phillips head screws holding speaker. Remove speaker.
16. Remove Ion trap from picture tube neck.
17. Remove forward wing nut under picture tube focus coil yoke. Remove yoke.
18. Remove 2 5/16" hex nuts holding side braces to picture tube rear support.
19. Remove screws and half moon clamp over deflection coil yoke. Remove yoke.
20. Remove left side brace top screw and screw located 3 inches ahead of it.
21. Remove screw holding clamp around face of picture tube. Remove tube.
22. Remove 4 push-on type knobs from radio receiver controls.
23. Remove 7 tacks holding antenna to light rear cover.
24. Remove 18 screws holding right rear cover. Remove cover.
25. Remove 3 1/4" hex nuts from paper cover over receiver chassis.
26. Remove phono power plug from receiver chassis.
27. Remove phono audio plug from receiver chassis.
28. Remove FM antenna leads from receiver chassis.
29. Remove AM antenna leads from loop antenna.
30. Remove two mounting screws and pull out receiver chassis.

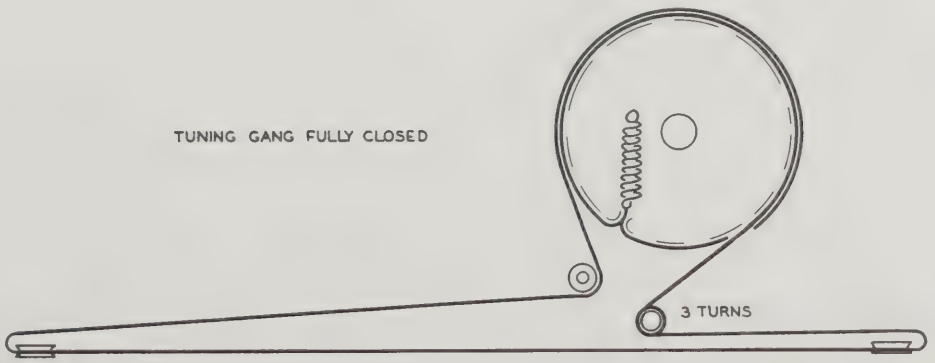
HORIZONTAL OSCILLATOR ADJUSTMENT

Set the horizontal hold control to the midpoint of its range. Turn the horizontal stability coil slug (B1) until the picture "syncs" horizontally.

PRODUCTION CHANGE

In early models of this receiver, the stabilizing oscillator coil was not used. The change of this horizontal-multivibrator circuit was incorporated to improve the horizontal synchronization.

DIAL CORD STRINGING



PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.	6BH6	6BH6	7CM	
V2	Converter	6J6	6J6	7HF	
V3	1st Video and Sound IF Amp.	12AU6	12AU6	7BK	
V4	2nd Video IF Amp.	12AU6	12AU6	7BK	
V5	3rd Video IF Amp.	12AU6	12AU6	7BK	
V6	4th Video IF Amp.	12AU6	12AU6	7BK	
V7	Video Detector	12AL5	12AL5	6HT	
V8	Video Amp.	12AU6	12AU6	7BK	
V9	Video Output- DC Restorer- R.F. Multi- brator	12AU7	12AU7	9A	
V10	Sound IF Amp.	12AU6	12AU6	7BK	
V11	Diss.-AF Amp.	12T8	12T8	9E	
V12	Audio Output	50L6GT	50L6GT	7AC	
V13	Sync. Sep.	12AV6	12AV6	7BT	
V14	Sync. Mult.- Vibrator	12SN7GT	12SN7GT	9BD	
V15	Vert. Output	50L6GT	50L6GT	7AC	
V16	Horizontal Oscillator- Amp.	12SN7GT	12SN7GT	9BD	
V17	Hor. Output	5CB6	5CB6	7BZ	
V18	Hor. Output	5CB6	5CB6	7BZ	
V19	Hor. Output	5CB6	5CB6	7BZ	
V20	Damper	3B2S0T	3B2S0T	6AD	
V21	Pulse Rect.	3B2S0T	3B2S0T	6AD	
V22	DET.-AVC-AF Amp.	12AV6	12AV6	7BT	
V23	Power Output	50L6GT	50L6GT	7AC	
V32A	Picture Tube	10BP4	10BP4	12D	
B	Picture Tube	10FP4	10FP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1	400	150	B-8C-16052	AFH80D				D-13041	Filter
C2	400	150	B-8C-16053	AFH80D				D-13041	Filter
C3A	4	150	A-8C-10077	AF844D		UF42215		D-13000	■ Filter ▲ Hor. Multi. Dec. V. Amp. Screen Dec.
C4A	150	25	A-8C-16159	AF3010A		UP4BJ		D-13043	● Vert. Output Cath. Byp. ▲ Output Cath. Byp.
B	50	25				1057			
C5	300	3	B-8C-16417	PRS6/500		UP1AJ		TVA-4	Video Amp. Cath. Bypass
C6	8	300	A-8C-16450	PRS350/8		217 BR835		UT-83	Pulse Rect. Filter
C7	10	50	A-8C-13132	PRS50/10		BBR10-50T		TVA-14	Sync. Sep. Cath. Byp.
C8	10	50	A-8C-16761	PRS50/10		BBR10-50T		TVA-14	Stabilizing Cap.
C9	10	150	A-8C-11495	PRS150/12		BR1015		UT-121	Dyn. Limiter Cap.
C10A	40	3	A-8C-16432	AFH84435A		UP9DJ 56§			● Filter
B	20	300		-1		BR252A			■ Filter
D	30	300							▲ Filter
E	20	25							Output Cath. Bypass
C11	80	150	A-8C-16370	AF12F		UP3315§			Voltage Doubler Cap.
C12	8	100	C-8C-16012	PRS150/4		BR415		TVA-13	Stabilizing Cap.
C13	.5		C-8G-16045				GP2K-250		Ant. Coupling
C14	220		C-8G-16045				GP2K-250		" "
C15	220		C-8G-16045				GP2K-250		RF Coupling
C16	220		C-8G-16045				GP2K-250		" "
C17	1500		C-8G-13201				GP2L-001		RF Screen Bypass
C18	1400		C-8G-13201				GP2L-001		RF Supp. Bypass
C19	1400		C-8G-13201				GP2L-001		RF Bypass
C20	1400		C-8G-13201				GP2L-001		" "
C21	1000		C-8G-13201				GP2L-001		" "
C22	1000		C-8G-13201				GP2L-001		RF Plate Decoupling
C23	.5		A-8G-12495 -7						RF Coupling
C24	.5		A-8G-12495 -7						" "
C25	1		A-8G-12495 -2						" "
C26	1000		C-8G-13201				GP2L-001		RF Bypass
C27	2.2		A-8G-12495 -4						Osc. Coupling
C28	51		C-8G-11891				GP1K-50		Osc. Feedback
C29	51		C-8G-11891				GP1K-50		Osc. Grid Cap.
C30	7		C-8G-15224						Fixed Trimmer
C31	2.5		C-8G-15737						Osc. Feedback
C32	15		C-8G-11789				GP1K-10		Voltage Divider
C33	1500		C-8G-13201				GP2L-001		RF Bypass
C34	220		C-8G-16045				GP2K-250		RF Fil. Bypass
C35	220		C-8G-16045				GP2K-250		" "
C36	220		C-8G-16045				GP2K-250		Conv. Fil. Bypass
C37	220		C-8G-16045				GP2K-250		" "

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C38	47	500	C-8F3-109	1468-00005	SM5Q5	GP1K-50	MO.5-45	1FM-45	IF Coupling
C39	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	Conv. Plate Decoupling
C40	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	AGC Filter
C41	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	RF Bypass
C42	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	1st IF Supp. Bypass
C43	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	1st IF Decoupling
C44	100		C-8G-11734	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	1st IF Fil. Bypass
C45	47	500	C-8F3-109	1468-00005	SM5Q5	GP1K-50	MO.5-45	1FM-45	IF Coupling
C46	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	AGC Filter
C47	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	RF Bypass
C48	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd IF Supp. Bypass
C49	100		C-8G-11734	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	2nd IF Fil. Bypass
C50	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd IF Decoupling
C51	47	500	C-8F3-109	1468-00005	SM5Q5	GP1K-50	MO.5-45	1FM-45	IF Coupling
C52	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	AGC Filter
C53	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	RF Bypass
C54	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	3rd IF Supp. Bypass
C55	100		C-8G-11734	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	3rd IF Fil. Bypass
C56	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	3rd IF Decoupling
C57	.47	500	C-8F3-109	1468-00005	SM5Q5	GP1K-50	MO.5-45	1FM-45	IF Coupling
C58	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	RF Bypass
C59	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	4th IF Cath. Bypass
C60	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	4th IF Supp. Bypass
C61	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	4th IF Decoupling
C62	100		C-8G-11734	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	4th IF Fil. Bypass
C63	100		C-8G-11734	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	RF Bypass
C64	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	RF Bypass
C65	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	AGC Filter *
C66	1.0	200	C-8D-16214	484-1.0	DT2M1		ST-2-1M	TM-1	Pic. Tube Grid Filter
C67	47		C-8G-12198	1468-00005	SW5V5	NP0K-5	MO.5-55	MO-5	V. Diode Filter
C68	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	AGC Filter
C69	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	V. Det. Fil. Bypass
C70	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	V. Det. Fil. Bypass
C71	.05	200	C-8D-10770	P288-05	DT2S5		ST-4-05	TM-15	Video Coupling
C72	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	V. Amp. Screen Dec.
C73	.05	200	C-8D-10770	P288-05	DT2S5		ST-4-05	TM-15	Video Coupling
C74	.1	200		P288-1	DT2P1		ST-2-1M	TM-1	Pic. Tube Grid Filter
C75	47		C-8G-12198	1468-00005	SW5V5	GP1K-50	MO.5-45	1FM-45	S. IF Coupling
C76	1500		C-8G-11731	1467-0015	1W5D15	GP2L-0015	MW.5-215	1FM-215	S. IF Coupling
C77	220		C-8G-16045	1468-00025	SW5T25	GP2K-250	MO.5-325	1FM-325	S. IF Fil. Bypass
C78	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	S. IF Coupling
C79	220		C-8F3-117	1468-0002	SW5T2	GP2K-200	MO.5-32	1FM-32	Diode Load Cap.
C80	470	500	C-8F3-12	1468-0005	SW5T5	GP2K-500	MO.5-35	1FM-35	RF Bypass
C81	.05	200	C-8D-10770	P288-05	DT2S5		ST-4-05	TM-15	Isolation
C82	.01	200	C-8D-11738	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	Vol. Cont. Isolation
C83	.002	600	C-8D-10778	P688-002	DT6D2	GP2M-002	ST-6-002	TM-22	Audio Coupling
C84	220	500	C-8F3-10	1468-0002	SW5T2	GP2K-200	MO.5-32	1FM-32	RF Bypass
C85	220	500	C-8F3-10	1468-0002	SW5T2	GP2K-200	MO.5-32	1FM-32	AF Plate Bypass
C86	1500		C-8G-11731	1467-0015	1W5D15	GP2L-0015	MW.5-215	1FM-215	RF Bypass
C87	.01	200	C-8D-11738	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C88	1500		C-8G-11731	1467-0015	1W5D15	GP2L-0015	MW.5-215	1FM-215	S. IF Coupling
C89	.001	600	C-8D-12020	P688-001	DT6D1	GP2L-001	ST-6-001	TM-21	Output Plate Bypass
C90	.01	200	C-8D-11738	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	AGC Filter *
C91	.05	200	C-8D-10770	P288-05	DT2S5		ST-4-05	TM-15	Video Coupling
C92	.05	200	C-8D-10770	P288-05	DT2S5		ST-4-05	TM-15	Sync. Coupling
C93	.005	600	C-8D-10935	P688-005	DT6D5	GP2M-005	ST-6-005	TM-25	Integrator Net.
C94	.01	200	C-8D-11738	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	" "
C95	.01	400	C-8D-11738	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	Vert. Multi. Feedback
C96	470	500	C-8F3-12	1468-0005	SW5T5	GP2K-500	MO.5-35	1FM-35	Vert. Multi. Plate Byp.
C97	.2		C-8G-16681	P488-22	DT4P2		ST-4-2	S-4-2M	Vert. Discharge
C98	.2	400	C-8D-10942	P488-22	DT4P2		ST-4-2	CBP2C	Vert. Sweep Coupling
C99	.25	200	C-8D-16680	P488-25	DT2P25		ST-2-25	TC-2	Vert. Pulse Forming
C100	470	500	C-8F3-121	1468-0006	SW5T5	GP2K-500	MO.5-35	1FM-35	Hor. Sync. Coupling
C101	56	500	C-8F1-110						Hor. Multi. Feedback
C102	3300	500	C-8F1-131						Fixed Trimmer ‡
C103	47	500	C-8F3-109	1469-00005	SR5Q5	GP1K-50	MO.5-45	MC-45	Hor. Discharge †
C104	470	500	C-8F3-12	1468-0005	SW5T5	GP2K-500	MO.5-35	1FM-35	Hor. Sweep Coupling
C105	.01	200	C-8D-11738	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	" "
C106	.25	400	C-8D-10775	P488-25	DT4P25		ST-4-25	TC-2	Hor. Output Screen Byp.
C107	150	600	C-8F1-9	1468-00015	SW5T15	GP2K-150	MO.5-315	1FM-215	Hor. Sync. Coupling ‡
C108	.5	200	C-8D-16679	P288-5	DT2P5		ST-2-5	TC-5	Damper Filter
C109	.25	200	C-8D-16680	P488-25	DT2P25		ST-2-25	TC-2	Hor. Sweep Coupling
C110	330	1000	C-8F14-119						Fixed Trimmer
C111	.1	600		P683-1	DT6P1		ST-6-1	TM-1	RF Bypass
C112	.5	200	C-8D-16679	P288-5	DT2P5		ST-2-5	TC-5	" "
C113	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Cont. Control Bypass
C114	.02	200	C-8D-11304	P488-02	DT2S2		ST-4-02	TM-12	HV Osc. Fil. Bypass
C115	.02	200	C-8D-11304	P488-02	DT2S2		ST-4-02	TM-12	" " " "
C116	.01	200	C-8D-16678	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	HV Osc. Grid Cap.
C117	.1	200	C-8D-10771	P288-1	DT2P1		ST-2-1	TC-1	Bias Filter
C118	.02	200	C-8D-11304	P488-02	DT2S2		ST-4-01	TM-12	" "
C119	.02	200	C-8D-11304	P488-02	DT2S2		ST-4-01	TM-12	" "
C120	.02	200	C-8D-16677	P488-02	DT2S2		ST-4-01	TM-12	RF Bypass
C121	560	500	C-8F8-128						HV Osc. Decoupling
C122	.01	200	C-8D-16678	P488-01	DT2S1	GP2-335-01	ST-4-01	TM-11	Fixed Trimmer
C123	.02	200	C-8D-16677	P488-02	DT2S2		ST-4-02	TM-12	HV Osc. Feedback
C124	.1	200	C-8D-16676	P288-1	DT2P1		ST-2-1	TM-1	HV Osc. Screen Byp.
C125	.1	200	C-8D-16676	P288-1	DT2P1		ST-2-1	TM-1	Isolation
C126	500	10000	A-8G-16076						" "
C127	500	10000	A-8G-16078						HV Filter
C128	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	" "
C129	.05	600	C-8D-10982	P683-05	DT2S5		ST-4-05	TM-15	RF Bypass
C130	.01	400	C-8D-10761	P488-01	DT4S1		ST-4-01	TM-11	Line Isolation
C131	.01	200	C-8D-11738	P488-01	DT2S1	GP2-335-01	ST-2-01	TM-11	Line Filter
C132	470		C-8G-11732	1468-0005	SW5T5	GP2K-500	MO.5-35	1FM-35	RF Bypass *
C133	470		C-8G-11732	1468-0005	SW5T5	GP2K-500	MO.5-35	1FM-35	Ant. Coupling
C134	470		C-8G-11732	1468-0005	SW5T5	GP2K-500	MO.5-35	1FM-35	Ant. Isolation
C135	100		C-8G-12166	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	FM RF Cath. Bypass
C136	470		C-8G-11732	1468-0005	SW5T5	GP2K-500	MO.5-35	1FM-35	RF Bypass
C137	100		C-8G-12166	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	FM RF Plate Dec.
C138	100		C-8G-12166	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	RF Coupling
C139	1000		C-8G-13201	1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	" "
C140	2.2		C-8G-12495 -4						FM Mixer Cath. Bypass Osc. Coupling
C141	.05	200	C-8D-10770	P288-05	DT2S5		ST-4-05	TM-15	AVC Filter
C142	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	" "
C143	33		C-8G-14172	1468-00004	SW5Q4	NP0L-33	MO.5-44	1FM-44	RF Coupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: AEROVOX PART No.	REPLACEMENT DATA: CORNELL-DUBILIER PART No.	REPLACEMENT DATA: ERIE PART No.	REPLACEMENT DATA: SOLAR PART No.	REPLACEMENT DATA: SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C144	100		C-8G-12166	1468-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	RF Bypass
C145	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	" "
C146	5		A-8G-13962	1468-000003	SW5V5	NP0K-5	MO.5-55	MO-5	Osc. Feedback
C147	33		C-8G-14172	1468-00004	SW5Q4	NP0L-33	MO.5-44	1FM-44	Osc. Grid Cap.
C148	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Osc. Anode Bypass
C149	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Conv. Plate Decoupling
C150	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	RF Bypass
C151	100		C-8G-12166	1469-0001	SW5T1	GP1K-100	MO.5-31	1FM-31	Conv. Fil. Bypass
C152	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st IF Cath. Bypass
C153	2000		C-8G-16049	1467-002	1W5D2	GP2M-002	MW.5-22	1FM-22	1st IF Decoupling
C154	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st IF Fil. Bypass
C155	220		C-8G-11733	1468-00025	SW5T25	GP2K-250	MO.5-325	1FM-325	Diode RF Filter
C156	220		C-8G-11733	1468-00025	SW5T25	GP2K-250	MO.5-325	1FM-325	2nd IF Grid Filter
C157	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Supp. Bypass
C158	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Cath. Bypass
C159	2000		C-8G-12166	1467-002	1W5D2	GP2M-002	MW.5-22	1FM-22	2nd IF Decoupling
C160	360	500	C-8F3-120	1468-0004	SW5T4	GP2K-300	MO.5-34	1FM-34	Diode Load Cap.
C161	2000		C-8G-13962	1467-002	1W5D2	GP2M-002	MW.5-22	1FM-22	De-emphasis
C162	330	500	C-8F3-11	1468-00035	SW5T2	GP2K-300	MO.5-332	1FM-332	RF Bypass
C163	220		C-8G-11733	1468-00025	SW5T25	GP2K-250	MO.5-325	1FM-325	" "
C164	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Fil. Bypass
C165	.01	400	C-8D-10761	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C166	.05	400	C-8D-10770	P488-05	GT4S5		ST-4-05	TM-15	Video Isolation
C167	.01	400	C-8D-10761	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C168	220		C-8G-11733	1468-00025	SW5T25	GP2K-250	MO.5-325	1FM-325	AF Plate Bypass
C169	.01	400	C-8D-10761	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Tone Compensation
C170	.01	400	C-8D-10761	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C171	.005	600	C-8D-10935	P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Output Plate Bypass
C172	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	RF Bypass
C173	5000		A-8G-13962	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AM DET-AF Fil. Bypass
C174	.15	400	C-8D-16761	P488-15	GT4P2		ST-4-2	TM-15	Line Isolation
C175	.05	400	C-8D-10913	P488-05	GT4S5		ST-4-05	TM-15	Line Filter
C176	330	500	C-8F3-11	1468-00035	SW5T3	GP2K-300	MO.5-33	1FM-325	RF Bypass *
C177	330	500	C-8F3-11	1468-00035	SW5T3	GP2K-300	MO.5-33	1FM-335	" "

* Not used in all models.
† Early production models use 62MMF in this application.
‡ Not used in early production models.
§ Parallel sections to obtain desired capacity.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	REPLACEMENT DATA: CLAROSTAT PART No.	INSTALLATION NOTES
R1A	1 Meg.	½	A-10A-16168	Q13-137	AM-63-2	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R1A Per Instructions
C	Switch		Not Req.	76-1	SW-A	" " " " "
R2A	250K2	½	A-10B-16166	Q11-130	AM-55-3	Horiz. Hold Control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R2A Per Instructions.
R3A	50K2	½	A-10B-16167	Q11-123	AM-44-3	Brightness Control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R3A Per Instructions
R4	200Ω	2	B-10B-16555			Contrast Control (Wire Wound)
R5	2000Ω	2	A-10B-16163	W-2000	43-2000	Width Control Wire Wound
R6	500K2	½	A-10B-16164	Q11-133		Vert. Hold Control " "
R7	500K2	½	A-10B-16164	Q11-133		Height control " "
R8	10K2	4	A-10B-16629			Focus Control Wire Wound
R9	2000Ω	2	A-10B-16162	W-2000	43-2000	Vert. Linearity Control Wire Wound
R10A	1 Meg.	½	A-10A-16502	Q13-137	AM-63-2	Tone Control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R10A Per Instructions
R11A	1 Meg.	½	A-10A-16502	Q13-137	AM-63-2	Volume Control
B	Shaft		Not Req.	Not Req.	KSS-3	Attach to R11A Per Instructions
C	Switch		Not Req.	76-1	SW-A	" " " " "

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: IRC PART No.	IDENTIFICATION CODES: ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R12	100K2	½	C-9B1-86		RF Grid
R13	68Ω	½	C-9B1-48		RF Cathode
R14	5600Ω	½	C-9B1-71		RF Supp. Grid
R15	100Ω	½	C-9B1-13		RF Screen Decoupling 20%
R16	5600Ω	½	C-9B1-71		RF Plate Decoupling
R17	5600Ω	½	C-9B1-71		RF Coil Shunt
R18	10K2	½	C-9B1-74		Conv. Grid
R19	1000Ω	½	C-9B1-13		Conv. Plate Decoupling 20%
R20	220Ω	½	C-9B1-54		Conv. Cathode
R21	10K2	½	C-9B1-74		Conv. Grid Coil Shunt
R22	10K2	½	C-9B1-74		Osc. Grid
R23	5600Ω	½	C-9B1-71		Osc. Plate
R24	10Ω	½	C-9B1-38		Parasitic Supp.
R25	10Ω	½	C-9B1-38		" "
R26	5600Ω	½	C-9B1-71		1st Video IF Grid
R27	82Ω	½	C-9B1-49		1st Video IF Cathode
R28	5600Ω	½	C-9B1-71	BTS-5600	1st Video IF Supp. Grid
R29	100Ω	½	C-9B1-13	BTS-1000	1st Video IF Decoupling
R30	1000Ω	½	C-9B1-13	BTS-1000	AGC Network
R31	1000Ω	½	C-9B1-13	BTS-1000	" "
R32	8200Ω	½	C-9B1-73		2nd Video IF Grid
R33	82Ω	½	C-9B1-49		2nd Video IF Cathode
R34	5600Ω	½	C-9B1-71	BTS-5600	2nd Video IF Supp. Grid
R35	100Ω	½	C-9B1-13	BTS-1000	2nd Video IF Decoupling 20%
R36	1000Ω	½	C-9B1-13	BTS-1000	AGC Network
R37	5600Ω	½	C-9B1-71	BTS-5600	3rd Video IF Grid
R38	82Ω	½	C-9B1-49		3rd Video IF Cathode
R39	5600Ω	½	C-9B1-71	BTS-5600	3rd Video IF Supp. Grid
R40	1000Ω	½	C-9B1-13	BTS-1000	3rd Video IF Decoupling 20%
R41	8200Ω	½	C-9B1-73		3rd Video IF Transformer Shunt
R42	68Ω	½	C-9B1-48		4th Video IF Cathode
R43	5600Ω	½	C-9B1-71	BTS-5600	4th Video IF Supp. Grid
R44	1000Ω	½	C-9B1-13	BTS-1000	4th Video IF Decoupling 20%
R45	47KΩ	½	C-9B1-82	BTS-47K	AGC Diode Load
R46	100K2	½	C-9B1-25	BTS-100K	AGC Network
R47	68Ω	½	C-9B1-48		Isolation
R48	82KΩ	½	C-9B1-85	BTS-82K	Voltage Divider

TRUETONE MODELS D1990, D1992, D2987

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA		IDENTIFICATION CODES	
	RESISTANCE	WATTS	TRUETONE PART No.	IRC PART No.		
R49	8200Ω	½	C-9B1-73	BTS-8200	Video Det. Diode Load	
R50	100Ω	½	C-9B1-7		Parasitic Supp.	
R51	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Video Amp. Grid	
R52	120Ω	½	C-9B1-51		Video Amp. Cathode	
R53	10KΩ	½	C-9B1-19	BTS-10K	Filter	20%
R54	8200Ω	1	C-9B1-73	BTA-8200	Video Amp. Plate	
R55	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Video Output Grid	20%
R56	12KΩ	½	C-9B1-75	BTS-12K	Video Output Cathode	
R57	470KΩ	½	C-9B1-29		Sound IF Grid	20%
R58	1000Ω	½	C-9B1-13		Sound IF Decoupling	20%
R59	10KΩ	½	C-9B1-19	BTS-10K	De-emphasis	
R60	33KΩ	½	C-9B1-80	BTS-33K	Ratio Det. Diode Load	
R61	33KΩ	½	C-9B1-80	BTS-33K	" " " "	
R62	10 Meg.	½	C-9B1-37	BTS-10 Meg.	AF Grid	
R63	470KΩ	½	C-9B1-29	BTS-470K	AF Plate	
R64	22KΩ	½	C-9B1-78	BTS-22K	Tone Compensation	
R65	470KΩ	½	C-9B1-29	BTS-470K	Output Grid	20%
R66	180Ω	1	C-9B2-53	BW-1-180	Output Cathode	
R67	560Ω	2	C-9B4-59	BT-2-560	Filter	
R68	270Ω	½	C-9B1-55	BW-½-270	Sync. Sep. Cathode	
R69	22KΩ	½	C-9B1-78	BTS-22K	" " "	
R70	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Sync. Sep. Grid	20%
R71	220KΩ	½	C-9B1-27	BTS-220K	Sync. Sep. Plate	20%
R72	10KΩ	½	C-9B1-19	BTS-10K	Phase Correction	20%
R73	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Voltage Divider	
R74	56KΩ	½	C-9B1-83	BTS-56K	" "	
R75	180KΩ	½	C-9B1-89	BTS-180K	Sync. Coupling Network	
R76	4700Ω	½	C-9B1-17	BTS-4700	Integrator	20%
R77	4700Ω	½	C-9B1-17	BTS-4700	Integrator	20%
C78	1000Ω	½	C-9B1-13	BTS-1000	Vert. MV Cathode	
R79	100KΩ	½	C-9B1-13	BTS-100K	Vert. MV Plate	20%
R80	390KΩ	½	C-9B1-221	BTS-390K	Vert. MV Grid	
R81	150KΩ	½	C-9B1-26	BTS-150K	Vert. MV Plate	
R82	2200Ω	½	C-9B1-15	BTS-2200	Vert. Peaking	20%
R83	1 Meg.	½	C-9B1-31	BTS-1 Meg.	Vert. Output Grid	20%
R84	150Ω	½	C-9B1-52	BW-½-150	Vert. Output Cathode	
R85	470KΩ	½	C-9B1-29	BTS-470K	Vert. Output Plate	
R86	18KΩ	½	C-9B1-77	BTS-18K	Feedback	
R87	470Ω	½	C-9B1-29	BTS-470	Voltage Divider	
R88	330Ω	½	C-9B1-56	BW-½-330	Differentiator See Note 1	
R89	18KΩ	½	C-9B1-77	BTS-18K	Horiz. MV Grid	
R90	1800Ω	½	C-9B1-65	BTS-1800	Horiz. MV Plate See Note 2	
R91	270Ω	½	C-9B1-55	BW-½-270	Horiz. MV Cathode	
R92	560KΩ	½	C-9B1-225	BTS-560K-5%	Horiz. MV Grid	5%
R93	330KΩ	½	C-9B1-92	BTS-330K	Voltage Divider See Note 3	
R94	2200Ω	½	C-9B1-15	BTS-2200	Filter	20%
R95	3.9 Meg.	½	C-9B1-105	BTS-3.9 Meg.	Horiz. Amp. Grid	
R96	220KΩ	½	C-9B1-27	BTS-220K	Horiz. Amp. Plate See Note 4	20%
R97	100Ω	½	C-9B1-7		Parasitic Supp.	20%
R98	100Ω	½	C-9B1-7		" "	20%
R99	100Ω	½	C-9B1-7		Parasitic Supp.	20%
R100	100Ω	½	C-9B1-7		" "	20%
R101	100Ω	½	C-9B1-7		" "	20%
R102	100Ω	½	C-9B1-7		" "	20%
R103	39KΩ	½	C-9B1-81	BTS-39K	Horiz. Output Grid See Note 5	
R104	220Ω	5	C-9C12-1091	AB-225	Damper Filter (Wire Wound)	
R105	47Ω	1	C-9B2-5	BW-1-47	" "	
R106	560Ω	2	C-9B4-59	BT-2-560	Focus Coil Shunt	
R107	10KΩ	½	C-9B1-19	BTS-10K	Filter	20%
R108	8200Ω	½	C-9B1-73	BTS-8200	HV Osc. Grid	
R109	1500Ω	½	C-9B1-73	BTS-1500	HV Osc. Grid	
R110	100Ω	½	C-9B1-7		Parasitic Supp.	20%
R111	100Ω	½	C-9B1-7		" "	20%
R112	10Ω	½	C-9B1-1		" "	20%
R113	3000Ω	2	C-9B4-170		HV Osc. Screen	5%
R114	100Ω	½	C-9B1-7		Parasitic Supp.	20%
R115	100Ω	½	C-9B1-7		" "	20%
R116	10Ω	½	C-9B1-1		" "	20%
R117	100KΩ	½	C-9B1-25	BTS-100K	Feedback	20%
R118	220KΩ	½	C-9B1-27	BTS-220K	Isolation	20%
R119	220KΩ	½	C-9B1-27	BTS-220K	"	20%
R120	470KΩ	½	C-9B1-29		HV Filter	20%
R121	150KΩ	½	C-9B1-26	BTS-150K	Isolation	
R122	220Ω	½	C-9B1-54		FM RF Cathode	
R123	470Ω	½	C-9B1-58	BTS-470	FM RF Plate Decoupling	
R124	680Ω	½	C-9B1-60	BTS-680	FM Mixer Cathode	
R125	150KΩ	½	C-9B1-26	BTS-150K	FM Mixer Grid	
R126	2.2 Meg.	½	C-9B1-33	BTS-2.2 Meg.	AM Conv. Grid	
R127	470Ω	½	C-9B1-58	BTS-470	Decoupling Network	
R128	22KΩ	½	C-9B1-58	BTS-22K	Osc. Grid	
R129	470Ω	½	C-9B1-58	BTS-470	Osc. Plate Decoupling	
R130	68Ω	½	C-9B1-48	BW-½-68	1st IF Cathode	
R131	470Ω	½	C-9B1-58	BTS-470	1st IF Decoupling	
R132	47KΩ	½	C-9B1-82	BTS-47K	Diode Filter	
R133	2.2 Meg.	½	C-9B1-33	BTS-2.2 Meg.	AVC Network	20%
R134	3.3 Meg.	½	C-9B1-34	BTS-3.3 Meg.	Diode Load	20%
R135	150KΩ	½	C-9B1-26	BTS-150K	2nd FM IF Grid	20%
R136	220KΩ	½	C-9B1-27	BTS-220K	2nd FM IF Supp. Grid	20%
R137	68Ω	½	C-9B1-48	BW-½-68	2nd FM IF Cathode	
R138	470Ω	½	C-9B1-58	BTS-470	2nd FM IF Decoupling	
R139	27KΩ	½	C-9B1-79	BTS-27K	De-emphasis	
R140	22KΩ	½	C-9B1-78	BTS-22K	Ratio Det. Diode Load	
R141	6.8 Meg.	½	C-9B1-36	BTS-6.8 Meg.	AF Grid	20%
R142	470KΩ	½	C-9B1-94	BTS-470K	AF Plate	
R143	470KΩ	½	C-9B1-94	BTS-470K	Output Grid	
R144	150Ω	½	C-9B1-52	BW-½-150	Output Cathode	
R145	3600Ω	5		AB-3500	Filter (Wire Wound)See Note 6	
R146	500Ω	5		AB-500	" (Wire Wound)See Note 7	
R147	50Ω	5			Surge Limiter (Wire Wound) See Note 7	
R148	1800Ω	½	C-9B1-65	BTS-1800	Filament Shunt See Note 8	
R149	220KΩ	½	C-9B1-27	BTS-220K	Isolation	

Note 1. Early production models used 180Ω resistor in this application.
Note 2. Early production models used 33KΩ resistor in this application.
Note 3. Early production models used 120KΩ resistor in this application.
Note 4. Early production models used 33KΩ resistor in this application.
Note 5. Early production models used 100KΩ resistor in this application.
Note 6. Some models use two 1800Ω, 2W resistors in series to obtain correct resistance and wattage.
Note 7. Some models use two 1000Ω, 2W resistors in parallel to obtain correct resistance and wattage.
Note 8. Not used in all models.

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC.	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	NOTES
T1	32Ω Tap @ 3Ω		B-16M-16157				Hor. Output Chk. Coil
T2	97Ω	6.3Ω	B-12C-16050		TSO-4		Vert.Output Trans.
T3A	14.4Ω		B-13M-13590	DY-1			Hor.Deflection Coil
B	58Ω						Vert.Deflection Coil
T4	540Ω		B-13M-13569-2	FC-10			Focus Coil

TRANSFORMER (H.V. OSC.)

ITEM No.	RATING DC RESISTANCE PRI.	RATING DC RESISTANCE SEC. 1	RATING DC RESISTANCE SEC. 2	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	NOTES
T5	2.1Ω	450Ω	0Ω	B-201-16149				

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING IMPEDANCE PRI.1	RATING IMPEDANCE SEC.	RATING DC RES. PRI.1	RATING DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	INSTALLATION NOTES
T6	2700Ω PRI.2 3200Ω	3.6Ω	305Ω PRI.2 340Ω	.5Ω	Part of B-18A-16702				

FILTER CHOKE

ITEM No.	RATINGS TOTAL DIRECT CURRENT	RATINGS D. C. RESISTANCE	RATINGS INDUCTANCE (0 CURRENT 1000 ~)	REPLACEMENT DATA TRUETONE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	INSTALLATION NOTES
L1	.400A	10Ω	.37Henries	B-18A-1605-1				

COILS (RF-IF)

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA TRUETONE PART No.	REPLACEMENT DATA MEISSNER PART No.	NOTES
L2	Ant. Coil	0Ω		A-201-15676		
L3	Inductors	0Ω				No 18 Tinned Copper Wire, Straight Bare
L4	Inductors	0Ω				" " " " " " "
L5	RF Choke	.2Ω		A-16A-16637		
L6	RF Choke	.2Ω		A-16A-16637		
L7	RF Plate	0Ω		B-13E-12046		Low Band
L8	RF Plate	0Ω		B-13D-12155		High Band
L9	RF Choke	.2Ω		A-16A-16773		
L10	Mixer Grid	0Ω		B-13E-12046		Low Band
L11	Mixer Grid	0Ω		B-13D-12155		High Band
L12	RF Choke	.2Ω		A-16A-16637		
L13	RF Choke	.2Ω		A-16A-16637		
L14	Osc. Coil	0Ω		B-13D-12155		Low Band
L15	Osc. Coil	0Ω		A-13D-12045		High Band
L16	RF Choke	.2Ω		A-201-15609		
L17	1st Video IF	.1Ω		B-201-15612		
L18	2nd Video IF	0Ω	0Ω	A-201-16329		Includes 47MMF condenser
L19	RF Choke	1Ω		A-201-15609		
L20	3rd Video IF	0Ω		B-201-15612		
L21	RF Choke	1Ω		A-201-15609		
L22	4th Video IF	0Ω		B-201-15612		
L23	RF Choke	1Ω		A-201-15609		
L24	RF Choke	1Ω		A-201-15608		
L25	RF Choke	1Ω		A-201-16379		
L26	5th Video IF	0Ω		B-201-16412		
L27	RF Choke	1Ω		A-201-15609		
L28	Peaking	5.8Ω		A-16A-16514		50 Microhenries. Wound on 3.3KΩ resistor.
L29	Peaking	30Ω		A-16A-16515		650 Microhenries wound on 47KΩ resistor.
L30	Peaking	20Ω		A-16A-16516		400 Microhenries.
L31	Sound IF	1.8Ω	2.8Ω	C-201-16411		
L32	Ratio Det. Trans.	4.5Ω	0Ω	B-13M-16335		
L33	RF Choke	12Ω		A-201-16379		
L34	Hor. Osc.	67Ω		A-13D-16943		Incorporated in sets which have "C" stamped on back, only.
L35	RF Choke	24Ω		A-201-16158		807 Microhenries
L36	RF Choke	24Ω		B-16A-13524		2.5 Microhenries
L37	Fil. Choke	.1Ω		A-201-16405		
L38	Fil. Choke	.1Ω		A-201-16405		
L39	Fil. Choke	0Ω		A-201-15608		
L40	Fil. Choke	0Ω		A-201-15608		
L41	Fil. Choke	0Ω		A-201-15608		
L42	Fil. Choke	0Ω		A-201-15608		
L43	Fil. Choke	0Ω		A-201-15608		
L44	Loop Ant.	1Ω		C-13E-16496		
L45	Par. Supp.	0Ω		A-16B-16616		14 turns wound on a resistor
L46	RF Choke	1.5Ω		A-16B-16613		
L47	FM Mixer	0Ω		A-13E-16618		
L48	FM Osc.	0Ω		A-13D-16611		
L49	RF Choke	2.5Ω		A-16B-16023		
L50	Par. Supp.	0Ω		A-16B-16615		2 1/2 turns wound on 22Ω resistor.
L51	AM Osc.	1Ω	5Ω	B-13D-16611	14-1060	
L52	Par. Supp.	0Ω		A-16B-16614		4 Turns wound on resistor.
L53	FM 1st IF	.5Ω	.1Ω	B-13A-16612		
L54	AM 1st IF	14Ω	14Ω	B-13A-16662	16-6678	
L55	FM 2nd IF	1.2Ω	1Ω	B-13B-16000		
L56	AM 2nd IF	14Ω	14Ω	B-13B-16302	16-6678	
L57	Ratio Det. Trans.	.8Ω	.1Ω	B-13M-16001		
L58	RF Choke	2.8Ω		A-16A-16637		
L59	Fil. Choke	0Ω		A-16B-16023		
L60	Fil. Choke	0Ω		A-16B-16023		

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			INSTALLATION NOTES
			TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	
	FIELD	V. C. IMP.		ST-102		# Replace output transformer to match 6-8Ω voice coil.
SP1A	PM	3.6Ω	B-18A-16702††	MOD.P12-S#	12A6A	†† Used in model D1992
B	PM		C-18A-16473‡‡			‡‡ Used in model D1990
C	PM		B-18A-16440##			## Used in model D2987
	CONE DIA.	V. C. DIA.				
SP2A	11 3/4"	1"	††			
B	8"		‡‡			
C	5"		##			

SELENIUM RECTIFIER

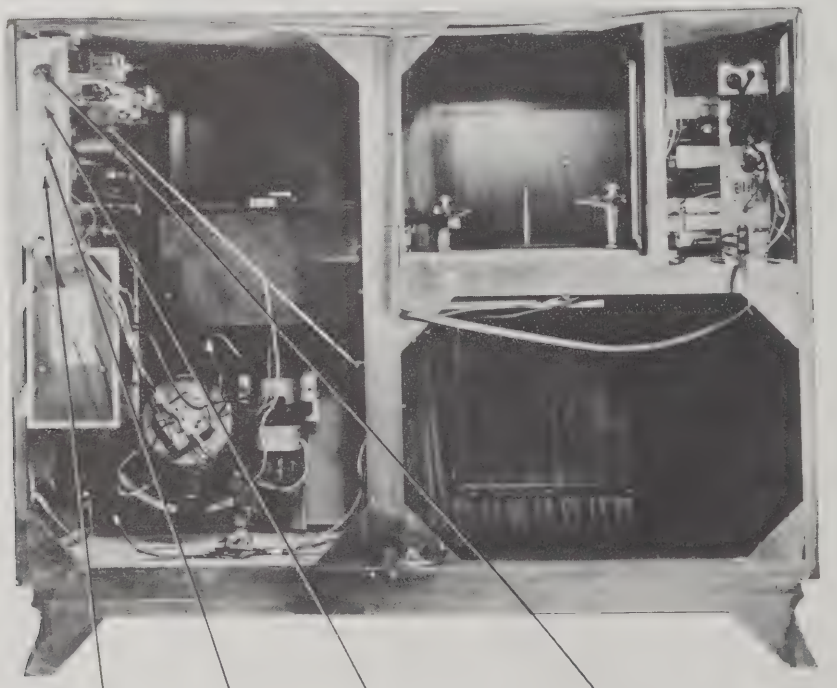
ITEM No.	RATING	REPLACEMENT DATA			NOTES
	CURRENT	TRUETONE PART No.			
M1	.17ΘA	B-21J-16196			
M2	.17ΘA	B-21J-16196			
M3	.06ΘA	A-21J-12775			
M4	.06ΘA	A-21J-12775			

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					TRUETONE PART No.		
M5	Bayonet				A-46A-16545		115V-125V 10W.

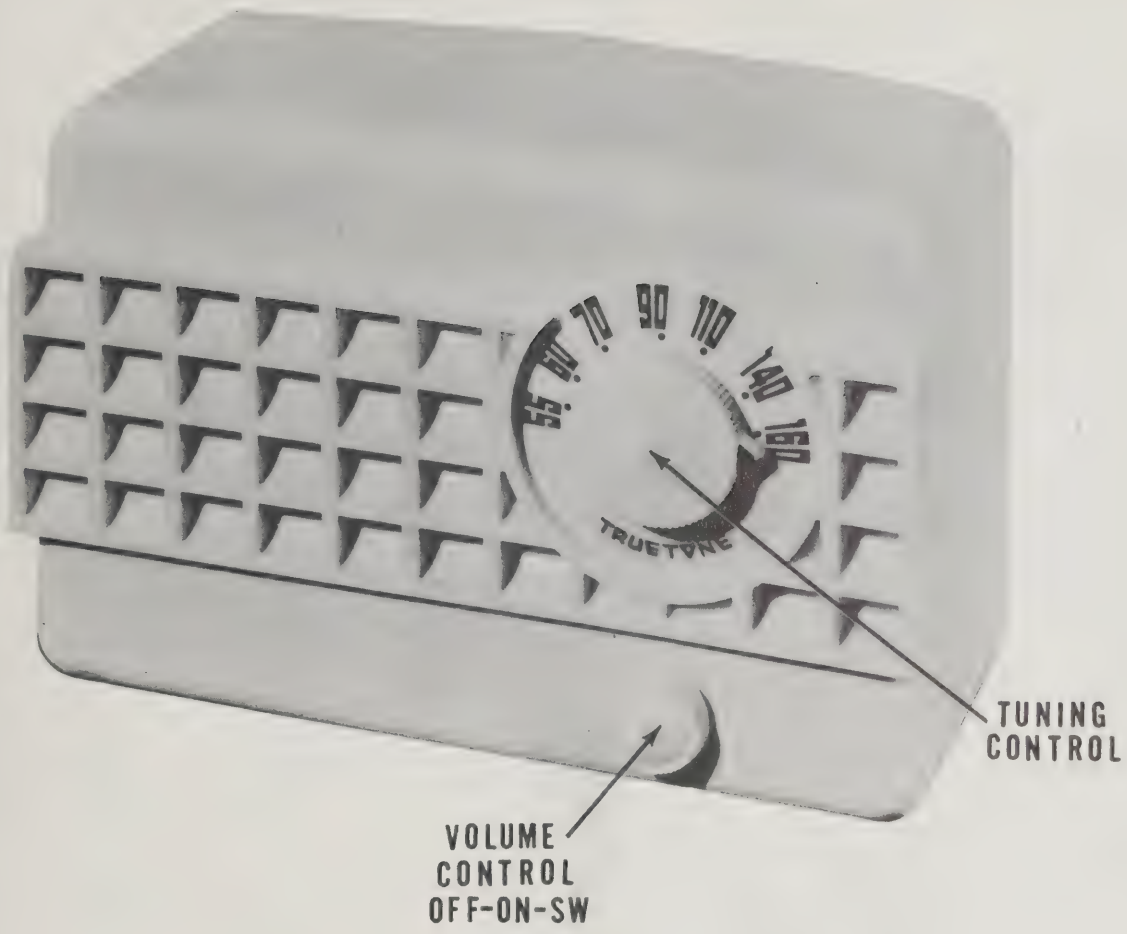
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M6	Band Switch	B-20A-16663	
M7	Ballast Tube	B-9M-16534	
M8	Ion Trap	B-16M-16195	
M9	Tuning Cap.	B-8A-16592	(16-477MMF, 17-178MMF) W/T
	Knob	B-5B-16698-57	Tuning, Radio Chassis, Model D1992
	Knob	B-5B-16699-57	Volume, Radio Chassis, Model D1992
	Knob	B-5B-16700-57	Tone, Radio Chassis, Model D1992
	Knob	B-5B-16701-57	FM-AM-PH, Radio Chassis, Model D1992
	Knob	B-5B-16348-57	Contrast, Brightness, Hor. Hold, Off-Volume TV Chassis, Models D1992 and D1990
	Knob	B-5B-16292-57	Station Selector, TV Chassis, Models D1992 and D1990.
	Knob	B-5B-16289-57	Contrast, Brightness, Hold Hold, Off-Volume. Model D2987.
	Knob	B-5B-16291-57	Station Selector, Model D2987
	Safety Glass	C-30M-16280-1	For Models D1992 and D1990
	Safety Glass	B-30M-16381	For Model D2987



CABINET-REAR VIEW

TRUETONE MODELS
D2906, D2907



TRUETONE MODELS
D2906, D2907

TRUETONE MODEL D2907

TRADE NAME	Truetone, Models D2906, D2907 (Factory Model 189)
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	AC-DC Operated Superheterodyne Receiver with Loop Antenna
TUBES (FOUR)	Types 12BE6 Converter, 12AT6 DET-AVC-AF, 50B5 Power Output, 35W4 Rectifier
POWER SUPPLY	105-125 Volts AC RATING .24 Amp., @ 117 Volts AC
TUNING RANGE—BROADCAST	532.5-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer parallel with base of dial.

Use isolation transformer if available. If not connect a .1 MFD capacitor in series with low side of signal generator and B-.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to Pin 7 (Grid) of 12BE6 (V1). Low side to chassis.	455KC	Tuning gang fully open	Across voice coil	A1, A2	Adjust for maximum output. If isolation transformer is not used reduce dummy ant. to .001MFD to reduce hum modulation.
2.	.1MFD	"	1620KC	"	"	A3	Adjust for maximum output.
3.	75MMF	High side to antenna bank. Low side to B-.	1400KC	Tune for maximum signal.	"	A4	" " " "

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DATE 9/49 4917-14 SET #69 FOLDER #14

PARTS LIST AND DESCRIPTIONS

TRUETONE MODEL D2907

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: TRUETONE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	Converter	12BE6	12BE6	7CH	
V2	DET-AVC-AF	12AT6	12AT6	7BT	
V3	Power Output	50B5	50B5	7BJ	
V4	Rectifier	35W4	35W4	5BQ	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	40	150	CE-15	PRSA150/40-40	EDL4415		DSB-2x40-150	TA-440	Filter Red
B	40	150							Filter Green
C2	.05	200	CP503-4	P288-05	GT2S5		ST-4-05	TM-15	AVC Filter
C3	140	500	CM151-1	1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	Diode RF Filter
C4	.0015	400	CP202-2	P688-0015	GT6D2	GP2L-0015	ST-6-002	TM-22	Audio Coupling
C5	6000	500	CP502-3	1467-006	1D5D6	GP2M-005	MW.5-26	1FM-26	" "
C6	.02	400	CP203-1	P488-02	GT4S2		ST-4-02	TM-12	Output Plate Bypass
C7	.02	400	CP203-1	P488-02	GT4S2		ST-4-02	TM-12	Rect. Plate Bypass
C8	.05	400	CP503-4	P488-05	GT4S5		ST-4-05	72P1	Line Isolation

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	2 Meg.	½	VC-11	Q13-139#	M-66-2#	Volume Control
B	Switch		Not Req.	76-1	SW-A	Attach to R1A Per Instructions

Install 100KΩ resistor in series with the right hand terminal of the control, and the lead connecting to the same terminal of the original control. (Controls viewed from shaft end, terminals down.)

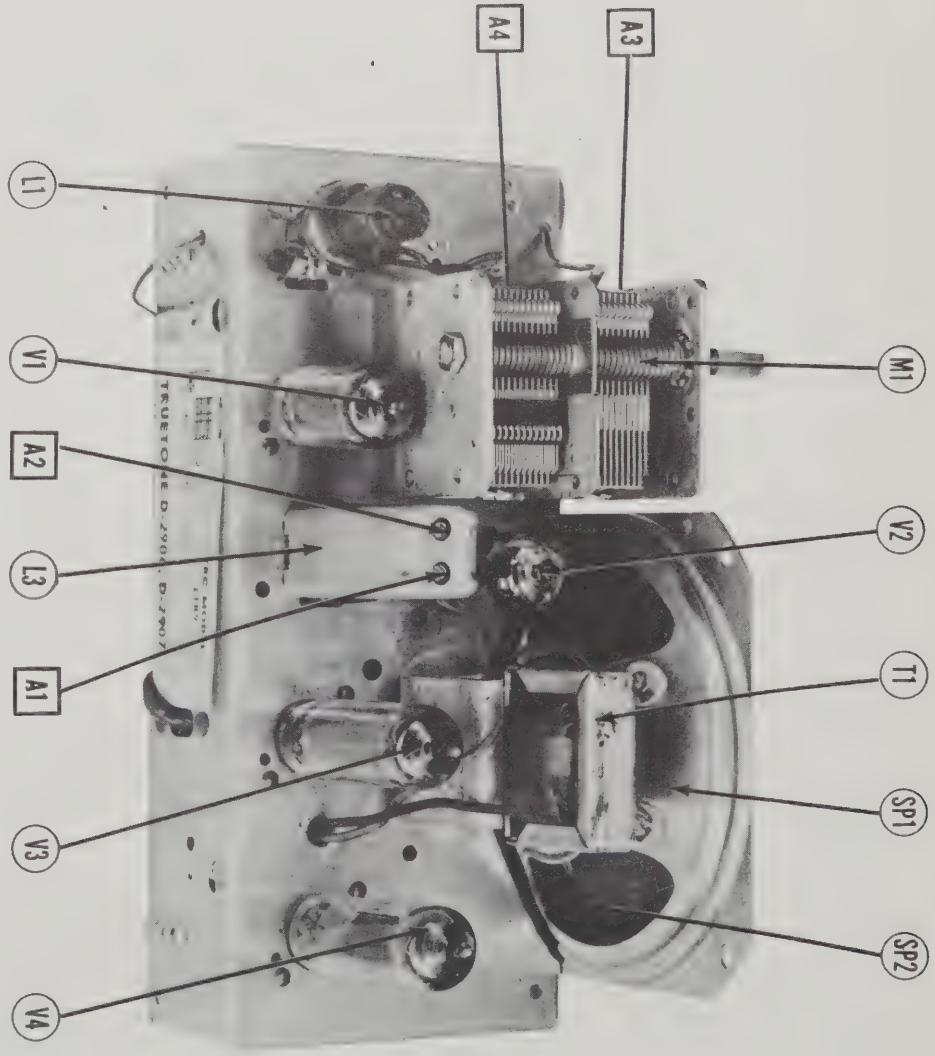
RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: TRUETONE PART No.	IRC PART No.	IDENTIFICATION CODES
R2	18KΩ	½	RC183-2	BTS-18K	Osc. Grid
R3	4.7 Meg.	½	RC475-1	BTS-4.7 Meg.	AVC Net.
R4	10 Meg.	½	RC106-1	BTS-10 Meg.	AF Grid
R5	220KΩ	½	RC224-1	BTS-220K	AF Plate
R6	330KΩ	½		BTS-330K	Output Grid
R7	2200Ω	1	RC-222-4	BW-1-2200	Filter
R8	39Ω	1	RC390-4	BW-1-39	Filament Dropping (Wire Wound)
R9	18Ω	½	RC180-1		Rect. Ballast

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: TRUETONE PART No.	JENSEN PART No.	QUAM PART No.	INSTALLATION NOTES
	FIELD	V. C. IMP.		ST-113 †		
SP1	PM	3.7Ω	SP-45	MOD.P4-X	4A07 †	† Remount output transformer.
	CONE DIA.	V. C. DIA.				
SP2	3 7/8"	9/16"				

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING				REPLACEMENT DATA				INSTALLATION NOTES
	IMPEDANCE		DC RES.		TRUETONE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
	PRI.	SEC.	PRI.	SEC.					
T1	3300Ω	3.7Ω	295Ω	.8Ω	TR-10	A-3332*	RO-2*	A-3025*	* Bend mounting tabs down and mount on original bracket.

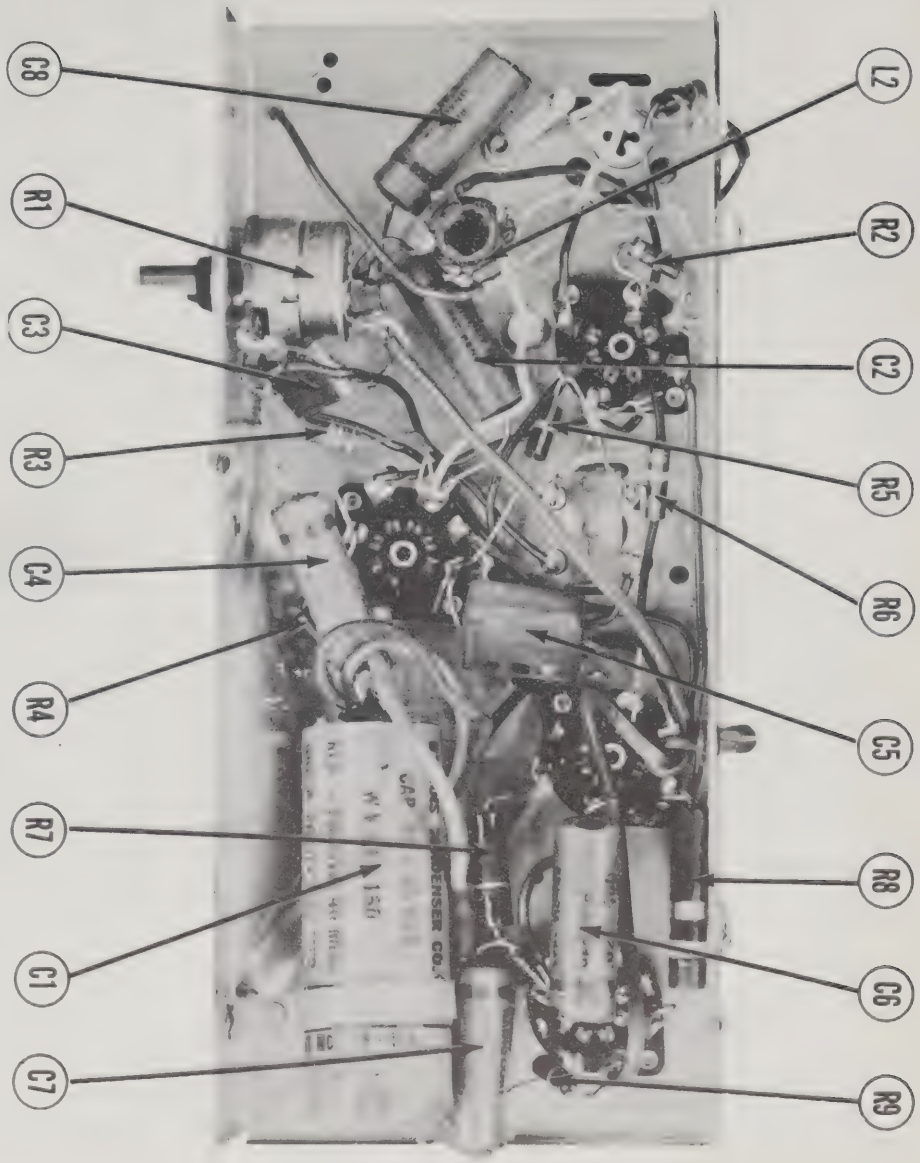
R F COILS

ITEM No.	USE	DC RES.		REPLACEMENT DATA		
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	
L1	Ant. Coil	42Ω	2.2Ω	LA-5		
L2	Osc. Coil	.5Ω	6Ω	LC-6		
L3	IF Trans.	18.5Ω	18.5Ω	LF-24	16-6678	

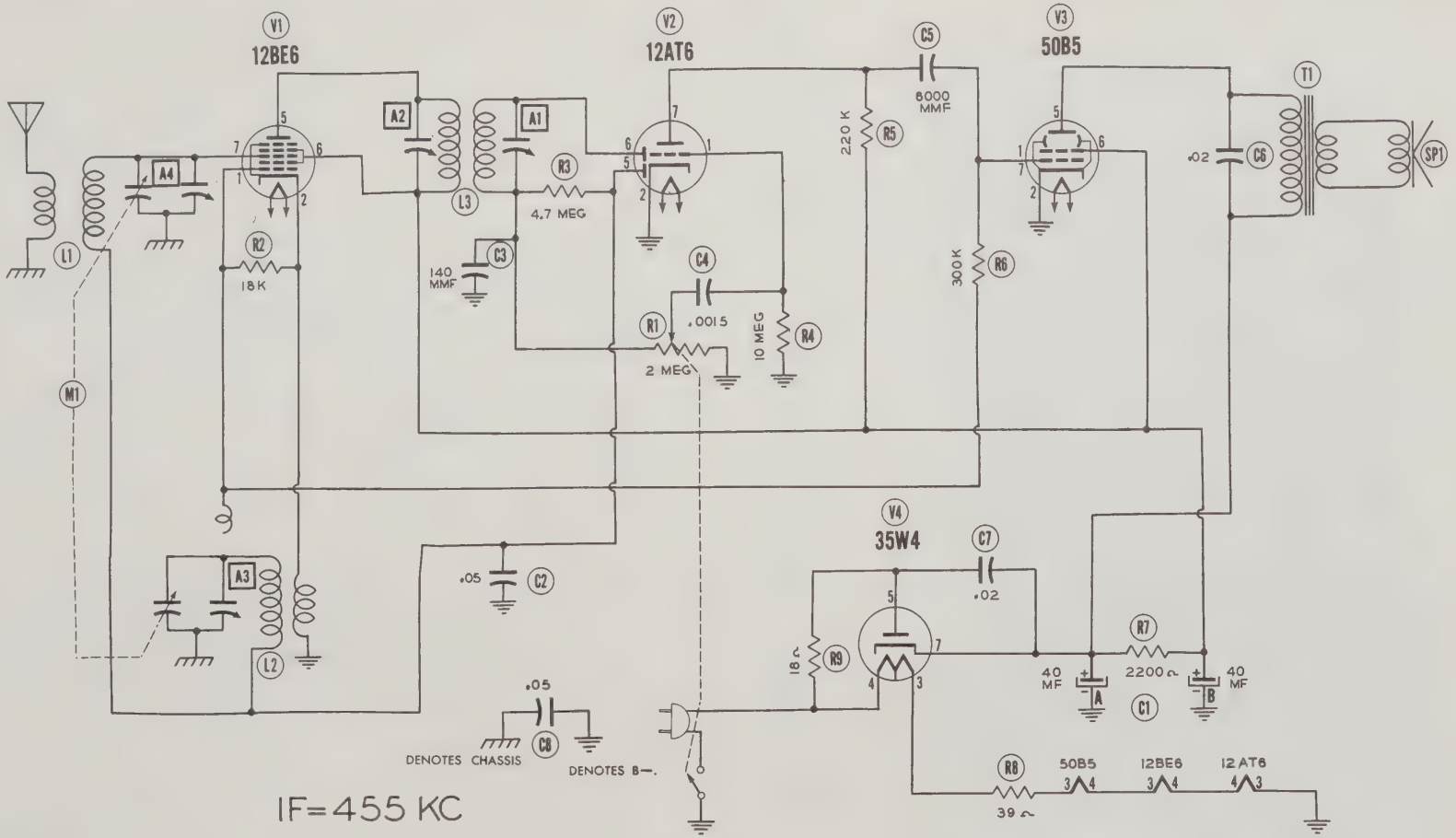
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M1	2 Gang Var. Cap	CV-14	(27-446MMC, 24-185MMC)
	Cabinet	CB-106	(Specify Ivory or Walnut)
	Knob	KN-20	
	Pointer Knob	KN-21	

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D2907



VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	§-4.1VDC	0V	24VAC	12VAC	100VDC	100VDC	-.3VDC
V 2	12AT6	-.5VDC	0V	0V	12VAC	-.3VDC	-.3VDC	50VDC
V 3	50B5	-1VDC	0V	75VAC	24VAC	115VDC	100VDC	-1VDC
V 4	35W4	0V	0V	80VAC	115VAC	114VAC	108VAC	150VDC

§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BE6	18KΩ	.5Ω	24Ω	12Ω	†2.2KΩ	†2.2KΩ	6 Meg.
V 2	12AT6	10 Meg.	0Ω	0Ω	12Ω	6 Meg.	1.6 Meg.	†22KΩ
V 3	50B5	350KΩ	0Ω	75Ω	24Ω	†320Ω	†2.2KΩ	350KΩ
V 4	35W4	Inf.	Inf.	117Ω	150Ω	170Ω	145Ω	100KΩ

†Measured From Pin 7 Of V4.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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4917-14

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

PHOTOFACT* Folder

VIDEODYNE MODELS
10FM, 10TV, 12FM, 12TV

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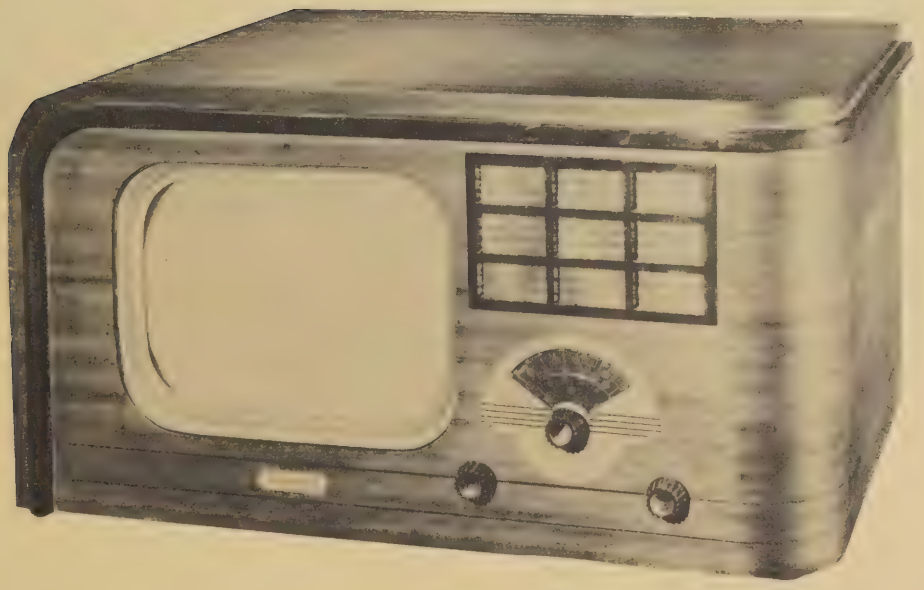

MODEL 12FM

VIDEODYNE MODELS
10FM, 10TV, 12FM, 12TV

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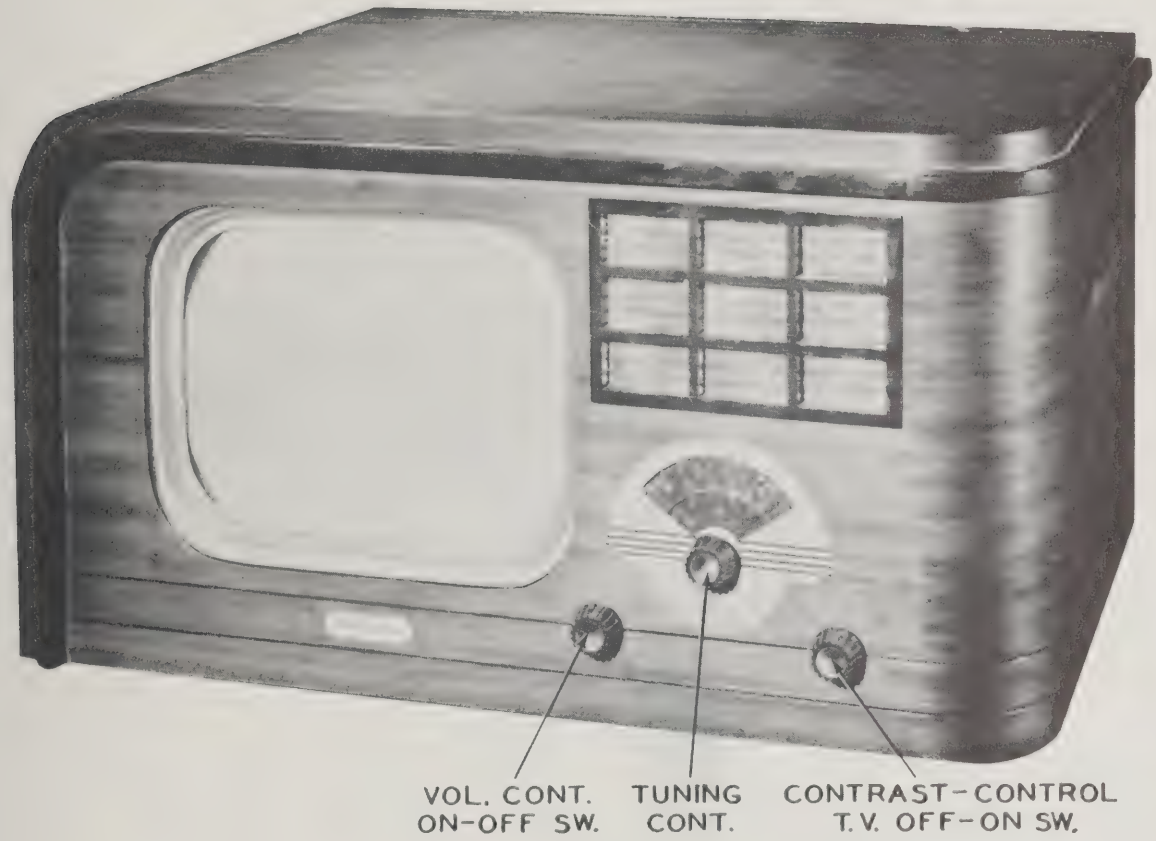
Date 9/49—No. 4917-15 Set No. 69—Folder No. 15

VIDEODYNE MODELS 10FM, 10TV, 12FM, 12TV

VIDEODYNE MODELS
10FM, 10TV, 12FM, 12TV



VIDEODYNE MODEL 12FM

TRADE NAME	Videodyne, Models 10FM, 10TV, 12FM, 12TV
MANUFACTURER	Videodyne Inc., 33 Jefferson St., Stanford, Conn.
TYPE SET	Models 10TV, 12TV,-TV Reception only, 10FM, 12FM-TV and FM reception
TUBES	Twenty-Six
POWER SUPPLY	110-120 Volts AC — RATING: 1.76 Amp @ 117 Volts AC
TUNING RANGE—	10TV and 12TV-Channels 2 through 13 — 10FM & 12FM-44 through 216MC

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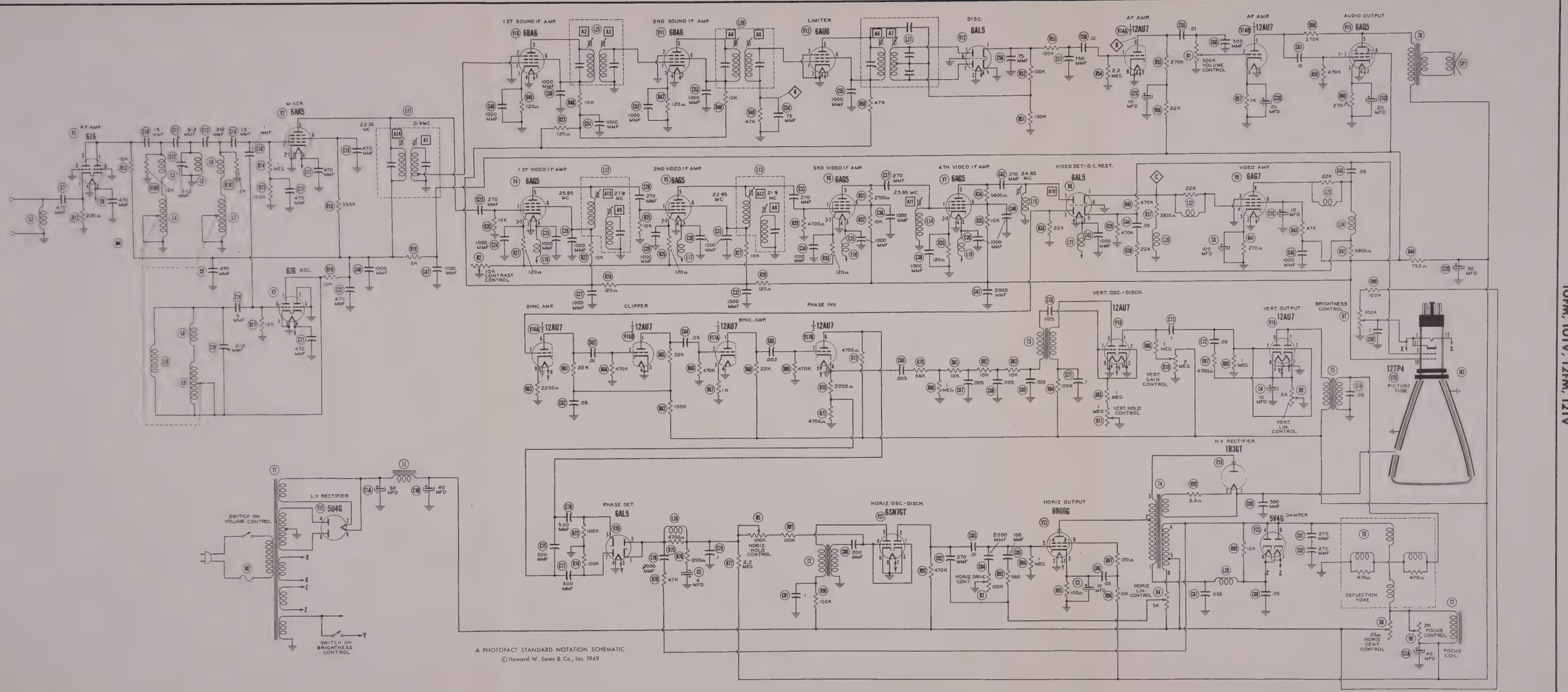
DATE 9/49 4917-15 SET #69 FOLDER #15


VIDEODYNE MODELS
10FM, 10TV, 12FM, 12TV
1ST SOUND IF AMP.
2ND SOUND IF AMP.
LIMITER
DISC.
AF AMP.
AF AMP.
AUDIO OUTPUT
MIXER
RF AMP
6J6
6AK5
219MC
22.35 MC
6J6 OSC.
1ST VIDEO IF AMP.
2ND VIDEO IF AMP.
3RD VIDEO IF AMP.
4TH VIDEO IF AMP.
VIDEO DET.-D.C. REST.
VIDEO AMP.
SYNC. AMP.
CLIPPER
SYNC. AMP.
PHASE INV.
VERT. OSC.-DISCH.
VERT. OUTPUT
BRIGHTNESS CONTROL
12TP4
PICTURE TUBE
H.V. RECTIFIER
1B3GT
PHASE DET.
HORIZ. OSC.-DISCH.
HORIZ OUTPUT
6BG6G
5V4G DAMPER
L.V. RECTIFIER
5U4G
SWITCH ON VOLUME CONTROL
SWITCH ON BRIGHTNESS CONTROL
DEFLECTION YOKE
FOCUS COIL
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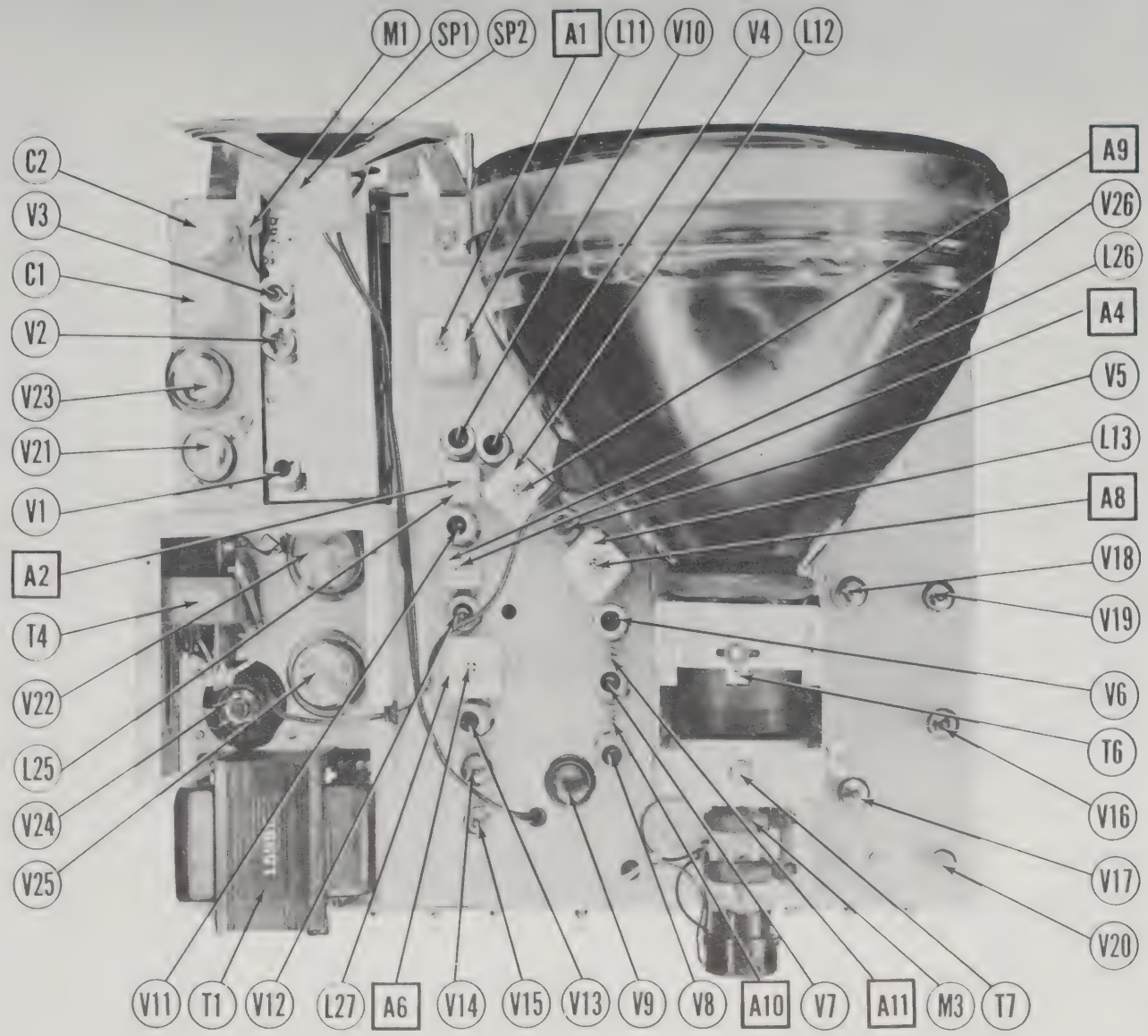
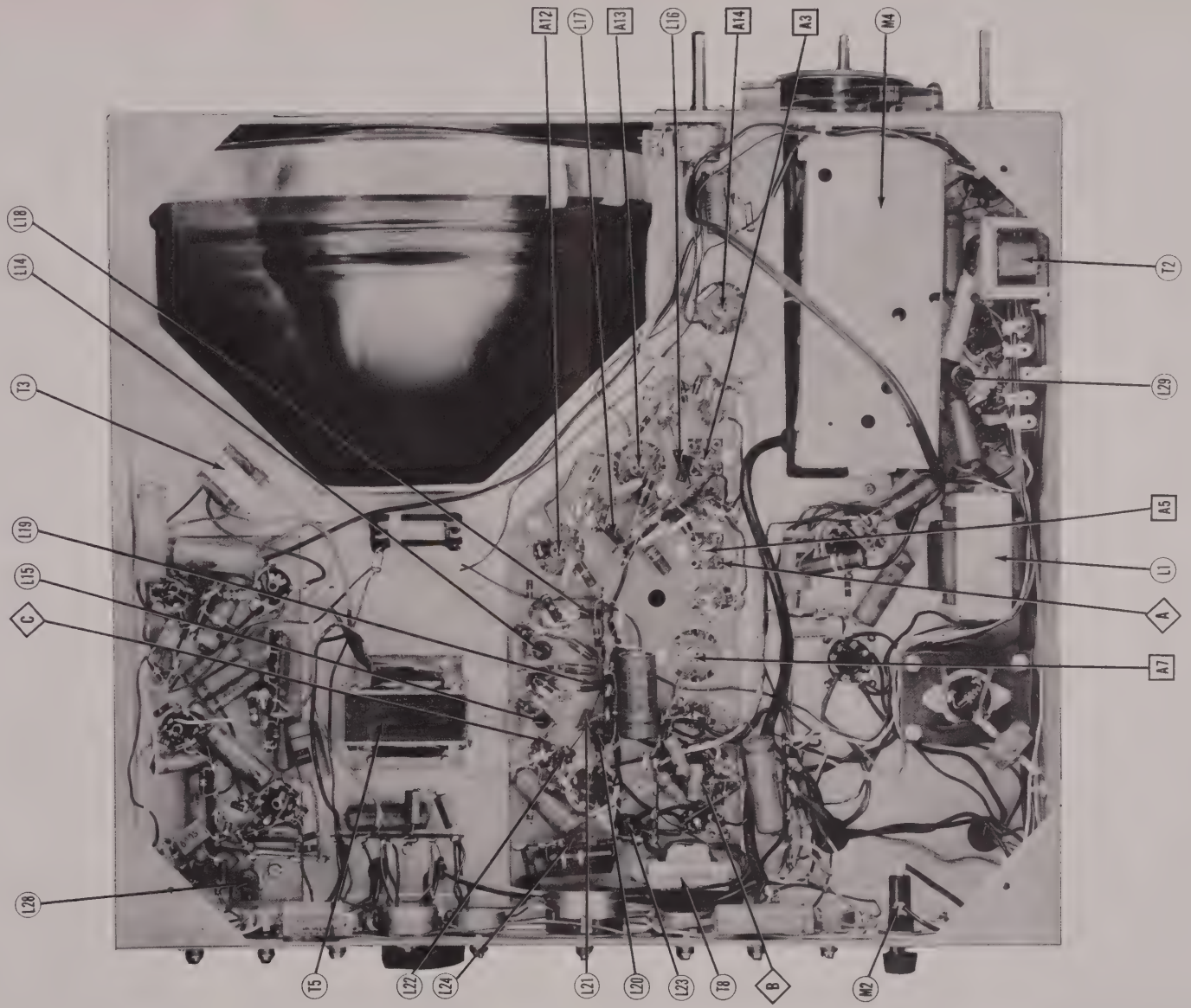
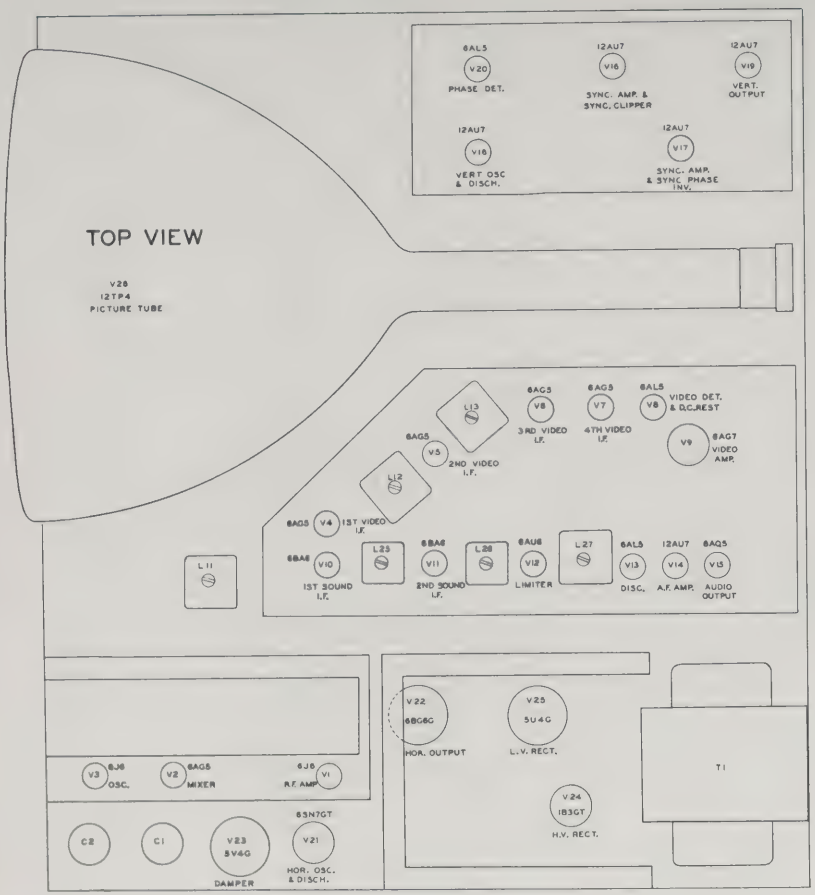
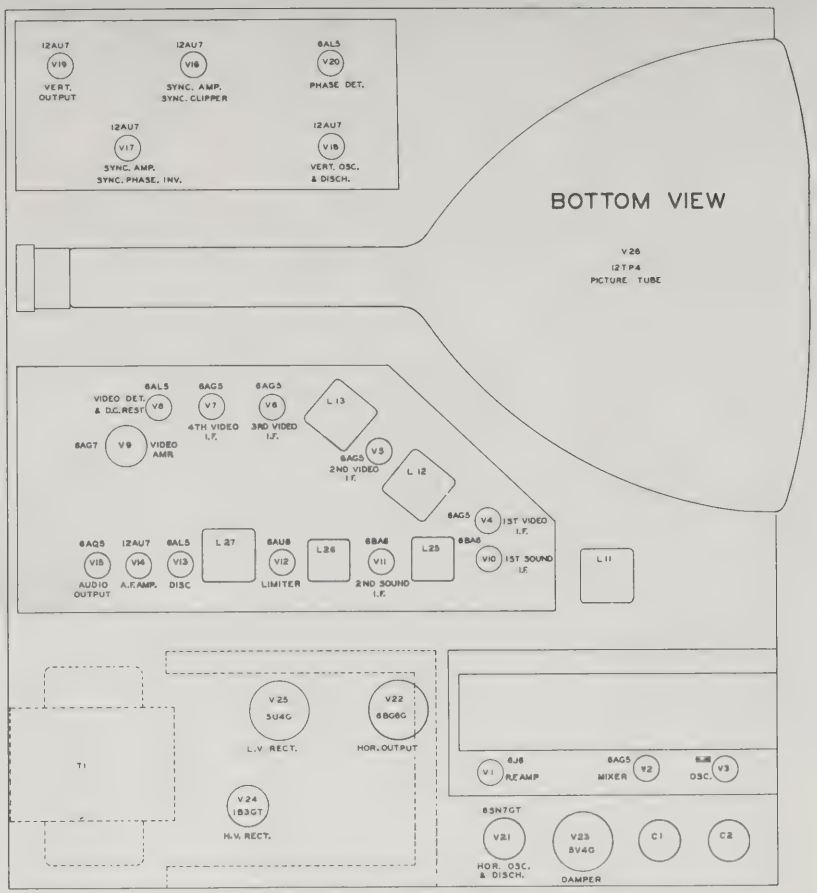


CHASSIS TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION





TUBE PLACEMENT CHART

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The models covered in this folder employ either a Dumont Input tuner or a Sarkes Tarzian tuner. The video and sound alignment procedure for the two versions are identical but the frequencies differ for the individual stages. Frequencies for the Dumont tuner will be identified by an asterisk (*) and the Tarzian tuner by a dagger (†).

To eliminate the high voltage shock hazard while aligning the receiver, remove the 6SN7 horizontal oscillator tube (V21).

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Remove the 6J6 high frequency oscillator tube (V3) during the sound and video IF alignment to prevent spurious oscillations from giving erroneous indications.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.9MC* 21.6MC†	Any	DC Probe to Point (A) Common to chassis. Use 3 volt scale.	A1,A2, A3,A4, A5	Adjust for maximum deflection. Attenuate signal generator output if VTVM goes off scale.

2. Check voltage on pins 2 and 7 of V13. The voltages should be equal but of oppositive polarity. If not adjust A6 until they are equal.

3. Move VTVM to pin 1 of V13. The VTVM should read zero. If not, adjust A7 until VTVM does read zero. (The VTVM should swing positively and negatively on either side of this setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect synchronized sweep voltage from sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.9* 21.6† (1MC Sweep)	21.9MC* 21.6MC†	Any	Vert. Amp. to Point (A) Low side to chassis.	A1,A2, A3,A4, A5	Adjust for maximum amplitude and symmetry as per Fig 1.
2.		"	"	"	"	Vert. Amp. to Point (B) Low side to chassis.	A6,A7	Adjust A6 for maximum amplitude and straightness of diagonal line as per Fig 2. Adjust A7 so marker is at center of diagonal line. Continue with step 4.

VIDEO IF ALIGNMENT

Set the contrast control to approximately 50% of its rotation.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
4.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	21.9MC* 21.6MC†	Any	DC Probe to Point (C) Common to chassis.	A8	Adjust for minimum deflection.
5.		"	27.9MC* 27.6MC†	"	"	A9	"
6.		"	24.05MC* 23.75MC†	"	"	A10	Adjust for maximum deflection.
7.		"	25.85MC* 25.55MC†	"	"	A11	"
8.		"	22.95MC* 22.65MC†	"	"	A12	"
9.		"	25.95MC* 25.65MC†	"	"	A13	"
10.		"	22.35MC* 22.05MC†	"	"	A14	"

11. Tune in test pattern. If vertical wedges appear to "twinkle", unscrew A10 approximately one turn.

OVERALL VIDEO IF RESPONSE CHECK

Connect synchronized sweep voltage from sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

Turn contrast control fully counter-clockwise during this check.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.		High side to ungrounded tube shield floating over mixer tube (V2). Low side to chassis.	24MC (10MC Sweep)	21.9MC* 21.6MC† 24.15MC* 23.85MC† 26.4MC* 26.1MC† 27.9MC* 27.6MC†	Any	Vert. Amp. to Point (C) Low side to chassis.		Check curve to see that it is similar to Fig 3. If not, slightly retouch A8 thru A14 to place markers at proper points.

FIG. 1

FIG. 2

ALIGNMENT INSTRUCTIONS (CONT.)

OSCILLATOR ALIGNMENT

The RF circuits of the Dumont Input tuner are very stable and will normally not require alignment in the field. The RF Amplifier circuits of the Sarkes Tarzian tuner are also very stable and should not require adjustment. However, it may be necessary to adjust the oscillator circuits in those models usings the Tarzian tuner. To adjust the oscillator circuits for this tuner follow the instructions and chart below:

(a). Replace the oscillator tube if removed for preceeding steps.
(b). Do not attempt oscillator alignment unless sound IF channel has been accurately aligned.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13.	Two 125Ω carbon res.	Across antenna, terminals with 125Ω resistor in each generator lead.	215.75MC	13	DC Probe to Point (B) Common to chassis.	A401	Adjust for zero reading. A positive and negative reading should be obtained on either side of the correct setting.
14.	"	"	209.75MC	12	"	A402	"
			203.75MC	11		A403	
			197.75MC	10		A404	
			191.75MC	9		A405	
			185.75MC	8		A406	
			179.75MC	7		A407	
			87.75MC	6		A408	
			81.75MC	5		A409	
			71.75MC	4		A410	
			65.75MC	3		A411	
			59.75MC	2		A412	

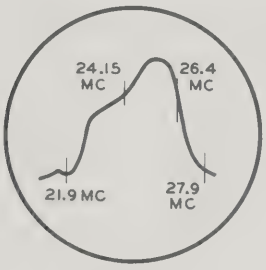


FIG. 3A

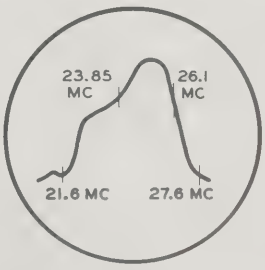
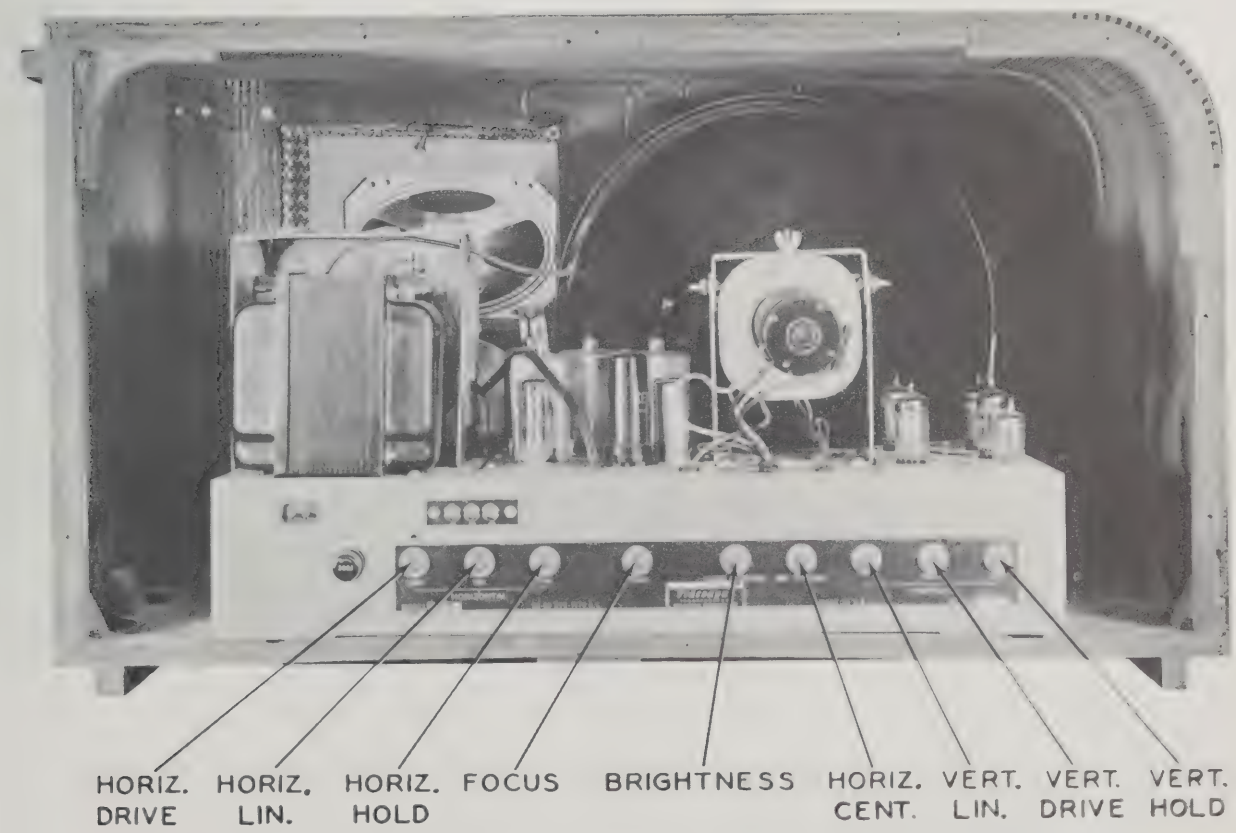


FIG. 3B



CABINET-REAR VIEW

VOLTAGE AND RESISTANCE MEASUREMENTS

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	85VDC	85VDC	6.3VAC	0V	0V	0V	1.6VDC		
V 2	6AK5	-.5VDC	0V	0V	6.3VAC	175VDC	50VDC	0V		
V 3	6J6	75VDC	0V	0V	6.3VAC	0V	§-1VDC	0V		
V 4	6AG5	0V	6.5VDC	0V	6.3VAC	235VDC	235VDC	6.5VDC		
V 5	6AG5	0V	6.5VDC	6.3VAC	0V	235VDC	235VDC	6.5VDC		
V 6	6AG5	0V	6.5VDC	6.3VAC	0V	235VDC	235VDC	6.5VDC		
V 7	6AG5	0V	1.2VDC	6.3VAC	0V	80VDC	125VDC	1.2VDC		
V 8	6AL5	.1VDC	0V	6.3VAC	0V	.3VDC	0V	0V		
V 9	6AG7	0V	0V	0V	.1VDC	3.6VDC	115VDC	6.3VAC	195VDC	
V 10	6BA6	0V	0V	6.3VAC	0V	105VDC	105VDC	6.5VDC		
V 11	6BA6	0V	0V	6.3VAC	0V	105VDC	105VDC	1.4VDC		
V 12	6AU6	-.3VDC	0V	6.3VAC	0V	50VDC	50VDC	0V		
V 13	6AL5	0V	-.3VDC	0V	6.3VAC	0V	0V	-.3VDC		
V 14	12AU7	22VDC	0V	.8VDC	0V	0V	16VDC	-.4VDC	0V	6.3VAC
V 15	6AQ5	0V	10VDC	6.3VAC	0V	270VDC	240VDC	0V		
V 16	12AU7	30VDC	-.4VDC	0V	0V	0V	37VDC	0V	1.8VDC	6.3VAC
V 17	12AU7	165VDC	0V	6VDC	0V	0V	270VDC	0V	20VDC	6.3VAC
V 18	12AU7	0V 135VDC	-95VDC -105VDC	0V	0V	0V	240VDC	-95VDC -105VDC	0V	6.3VAC
V 19	12AU7	245VDC	.6VDC	.4VDC 17VDC	0V	0V	245VDC	.6VDC	.4VDC 17VDC	6.3VAC
V 20	6AL5	5.5VDC	5.5VDC	6.3VAC	0V	16VDC	0V	-30VDC		
V 21	6SN7GT	-33VDC	90VDC	0V	-33VDC	215VDC	0V	6.3VAC	0V	
V 22	6BG6G	0V	0V	6VDC	325VDC	-4.5VDC	325VDC	6.3VAC	180VDC	*
V 23	5V4G	0V	390VDC	0V	320VDC	0V	320VDC	0V	390VDC	
V 24	1B3GT	* DO NOT MEASURE								
V 25	5U4G	0V	350VDC	0V	360VAC	0V	360VAC	0V	350VDC	
V 26	12TP4	80VDC	.1VDC	PIN 10 270VDC	PIN 11 80VDC	PIN 12 80VDC				

* Do Not Measure.

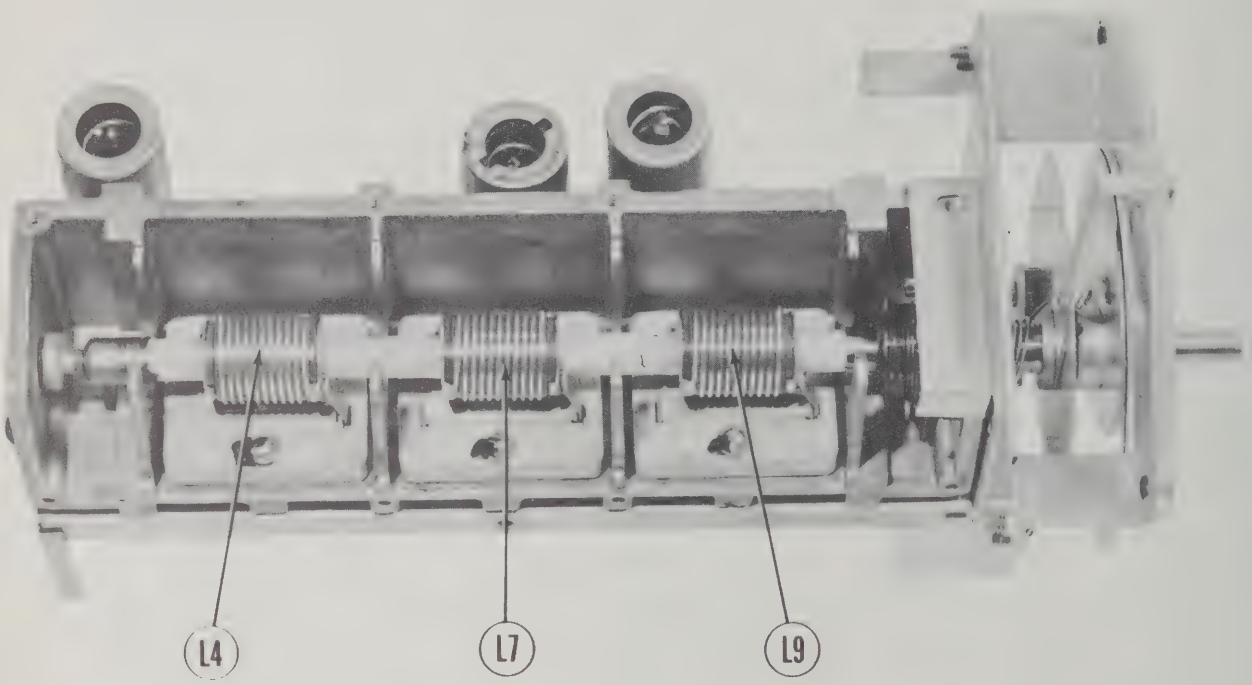
§TAKEN WITH VACUUM TUBE VOLTMETER.

RESISTANCE READINGS

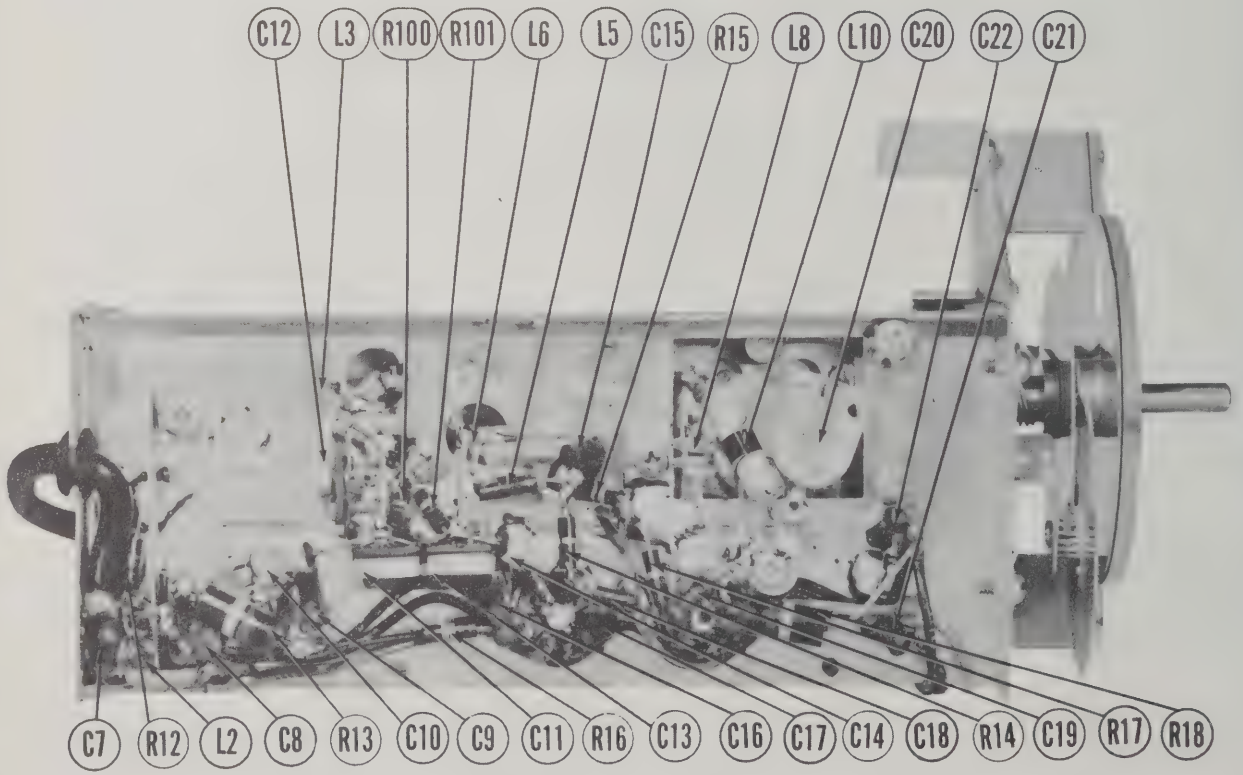
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6J6	†16KΩ	†16KΩ	.1Ω	0Ω	0Ω	0Ω	220Ω		
V 2	6AK5	1 Meg.	0Ω	0Ω	.1Ω	†6KΩ	†330KΩ	0Ω		
V 3	6J6	†16KΩ	0Ω	0Ω	.1Ω	0Ω	12KΩ	0Ω		
V 4	6AG5	10KΩ	9KΩ	0Ω	.1Ω	†11KΩ	†11KΩ	9KΩ		
V 5	6AG5	10KΩ	9KΩ	.1Ω	0Ω	†11KΩ	†11KΩ	9KΩ		
V 6	6AG5	4.7KΩ	9KΩ	.1Ω	0Ω	†14KΩ	†11KΩ	9KΩ		
V 7	6AG5	.1Ω	120Ω	.1Ω	0Ω	†16KΩ	†11KΩ	120Ω		
V 8	6AL5	3.5KΩ	22KΩ	.1Ω	0Ω	470KΩ	0Ω	.1Ω		
V 9	6AG7	0Ω	0Ω	0Ω	3.5KΩ	270Ω	†44KΩ	.1Ω	†5KΩ	
V 10	6BA6	0Ω	0Ω	.1Ω	0Ω	†10KΩ	†10KΩ	120Ω		
V 11	6BA6	.1Ω	0Ω	.1Ω	0Ω	†10KΩ	†10KΩ	120Ω		
V 12	6AU6	47KΩ	0Ω	.1Ω	0Ω	†50KΩ	†50KΩ	0Ω		
V 13	6AL5	200KΩ	100KΩ	0Ω	.1Ω	0Ω	0Ω	100KΩ		
V 14	12AU7	†270KΩ	14Ω	1000Ω	0Ω	0Ω	†300KΩ	2.2 Meg.	0Ω	.1Ω
V 15	6AQ5	470KΩ	270Ω	.1Ω	0Ω	†850Ω	†1000Ω	500KΩ		
V 16	12AU7	†125KΩ	470KΩ	0Ω	0Ω	0Ω	†125KΩ	22KΩ	2.2KΩ	.1Ω
V 17	12AU7	†22KΩ	470KΩ	1000Ω	0Ω	0Ω	†5KΩ	470KΩ	7KΩ	.1Ω
V 18	12AU7	†1.1 Meg †1.6 Meg	2.4 Meg 1.1 Meg	0Ω	0Ω	0Ω	†100KΩ	2.4 Meg 1.1 Meg	0Ω	.1Ω
V 19	12AU7	†900Ω	1 Meg.	5KΩ 8Ω	0Ω	0Ω	†900Ω	1 Meg.	5KΩ 8Ω	.1Ω
V 20	6AL5	400KΩ	400KΩ	.1Ω	0Ω	100KΩ	0Ω	100KΩ		
V 21	6SN7GT	360KΩ	†470KΩ	0Ω	360KΩ	†100KΩ	0Ω	.1Ω	0Ω	
V 22	6BG6G	Inf.	0Ω	100Ω	†1.5KΩ	1 Meg.	†68KΩ	.1Ω	†11KΩ	TOP CAP †11KΩ
V 23	5V4G	Inf.	45KΩ	Inf.	†100Ω	Inf.	†100Ω	Inf.	45KΩ	
V 24	1B3GT	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	Inf.	TOP CAP †10.5KΩ
V 25	5U4G	Inf.	35KΩ	Inf.	270Ω	Inf.	290Ω	Inf.	35KΩ	
V 26	12TP4	60KΩ 10Ω	1 Meg.	PIN 10 †310Ω	PIN 11 †60KΩ	PIN 12 60KΩ 10Ω				

† Measured From Pin 8 Of V25.

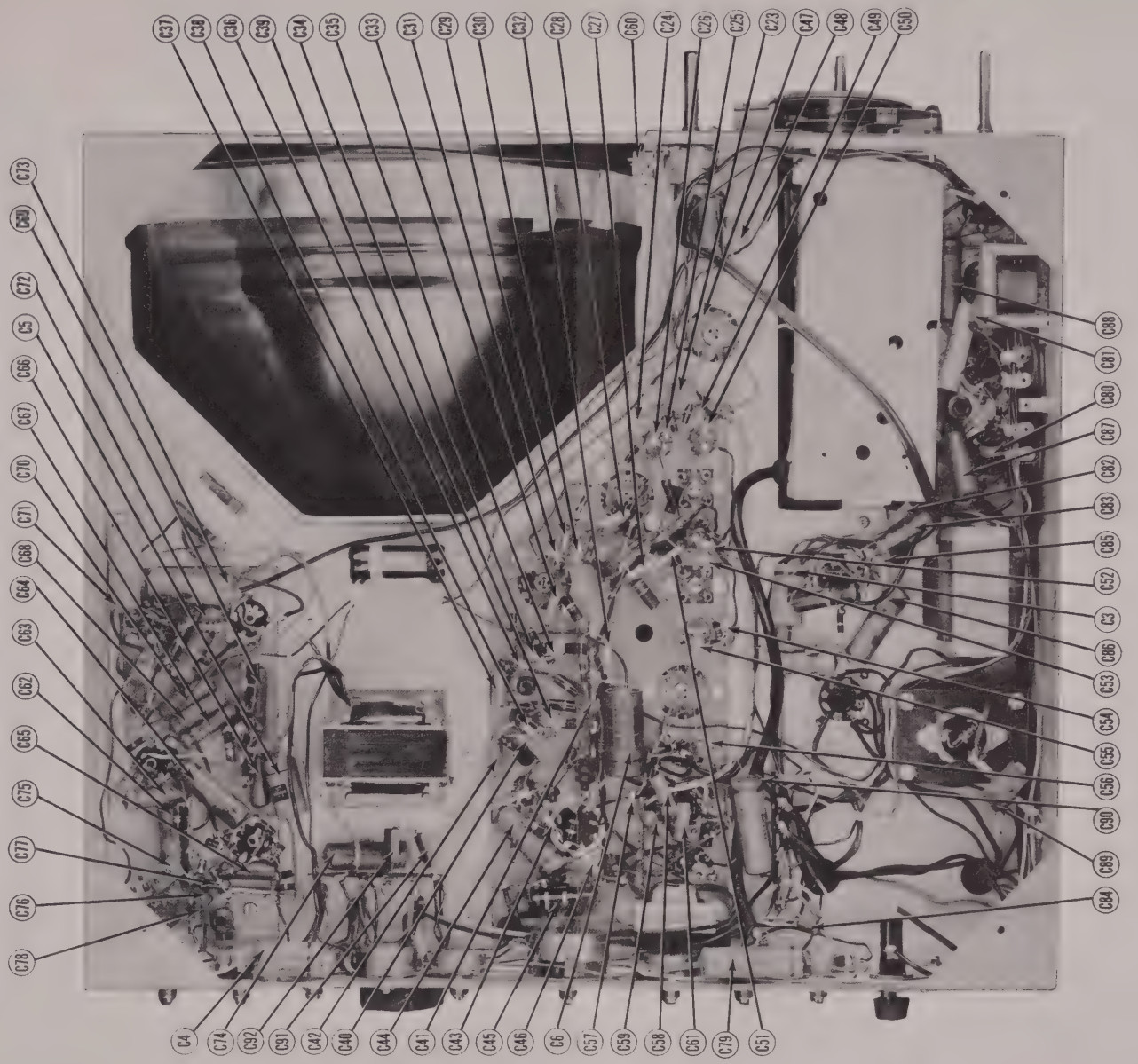
1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltage measured at 1,000 ohms.
2. Pin numbers are counted in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. Front panels controls set at minimum.
6. Where readings may vary according to the setting of the service controls, both minimum and maximum readings are given.



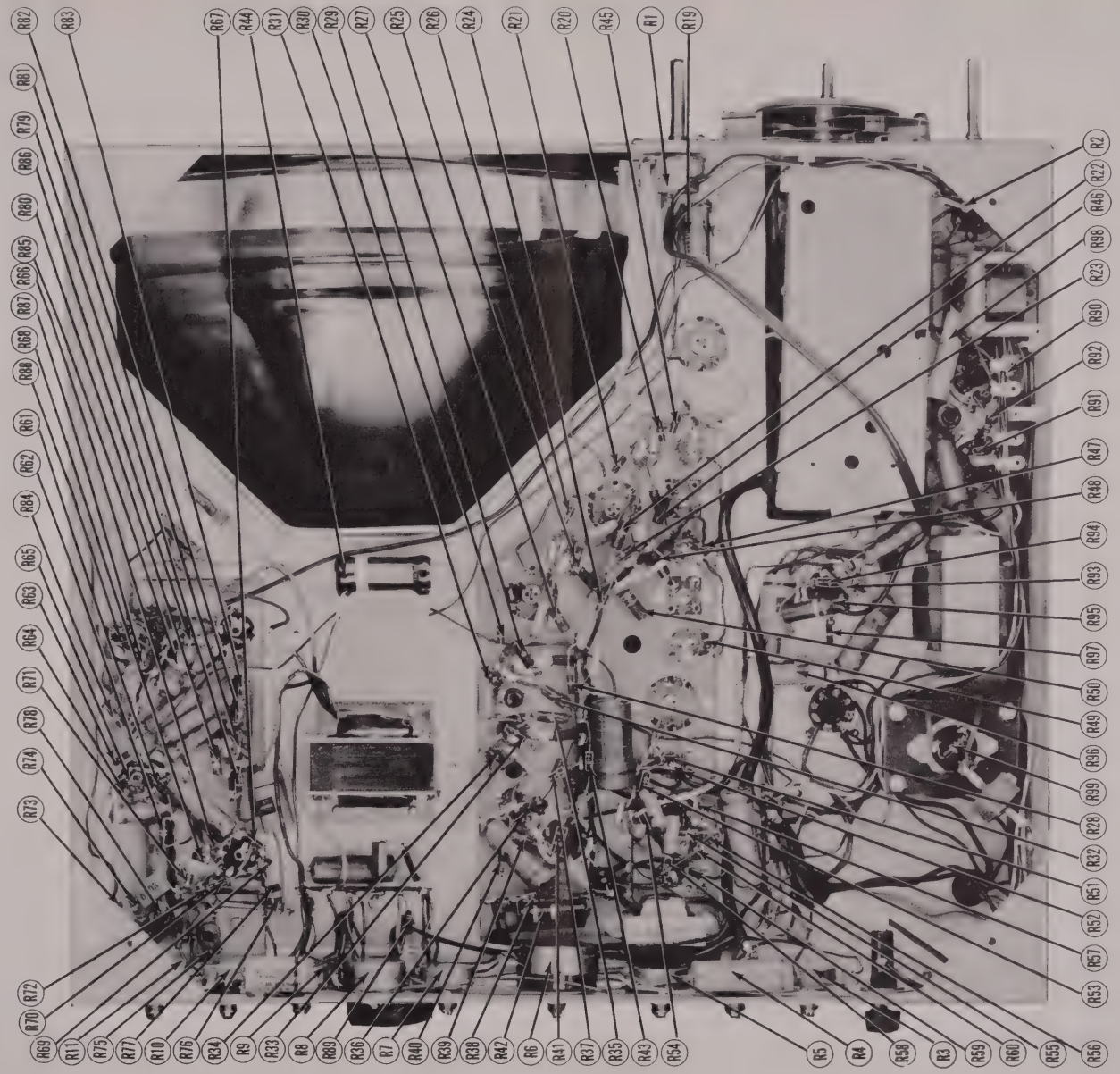
INPUTUNER-TOP VIEW



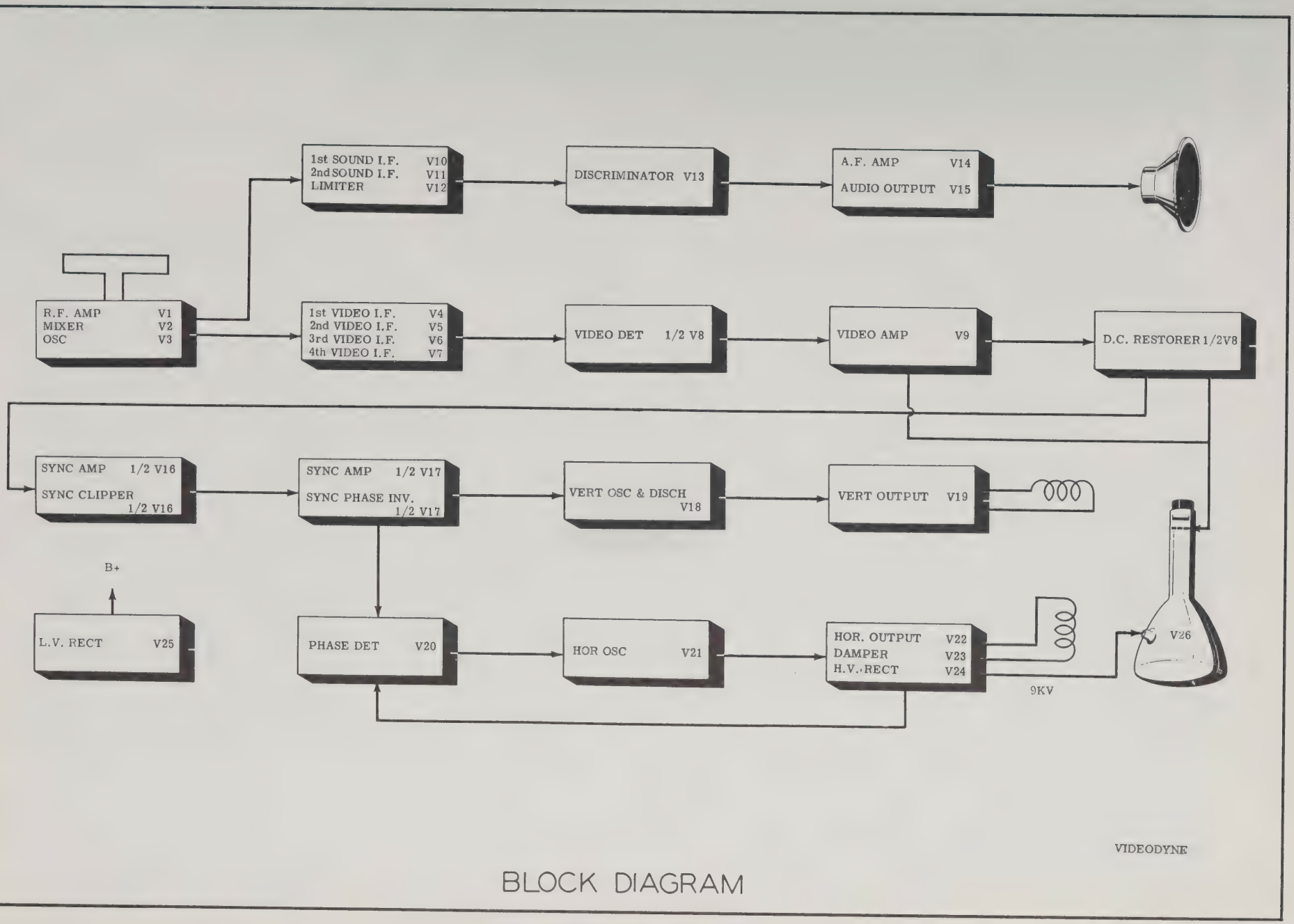
INPUTUNER-BOTTOM VIEW



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



BLOCK DIAGRAM

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: VIDEODYNE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	NOTES
V1	RF Amp.		6J6	7BF	
V2	Mixer		6AK5	7BD	
V3	Oscillator		6J6	7BF	
V4	1st Video IF Amp.		6AG5	7BD	
V5	2nd Video IF Amp.		6AG5	7BD	
V6	3rd Video IF Amp.		6AG5	7BD	
V7	4th Video IF Amp.		6AG5	7BD	
V8	Video Det.-DC Rest.		6AL5	6BT	
V9	Video Amp.		6AG7	8Y	
V10	1st Sound IF Am.		6BA6	7BK	
V11	2nd Sound IF Amp.		6BA6	7BK	
V12	Limiter		6AU6	7BK	
V13	Disc.		6AL5	6BT	
V14	AF Amp.		12AU7	9A	
V15	Audio Output		6AQ5	7B2	
V16	Sync. Amp.-Sync. Clipper	12AU7	12AU7	9A	
V17	Sync. Amp.-Sync. Phase Inv.	12AU7	12AU7	9A	
V18	Vert. Osc.-Disch.	12AU7	12AU7	9A	
V19	Vert. Output	12AU7	12AU7	9A	
V20	Phase Det.	6AL5	6AL5	6BT	
V21	Hor. Osc.-Disch.	6SN7GT	6SN7GT	6BQ	
V22	Hor. Output	6B9G	6B9G	5BT	
V23	Damper	5V4G	5V4G	5L	
V24	HV Rectifier	1B3GT	1B3GT	3C	
V25	LV Rectifier	5U4G	5U4G	5T	
V26	Picture Tube	12TP4	12TP4 or 12LP4	12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: VIDEODYNE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	30	450		AFH862J4A	UP43145			D14775	■ Filter
B	40	450			C				▰ Filter
C	10	450							▲ V. Output Screen Byp.
D	20	25							Output Cath. Bypass
C2A	40	450		AFH862J4A	UP43145			D14775	▰ Filter
B	30	450			C				■ Decoupling
C	10	450							▲ AF Plate Decoupling
D	20	25			GP1K-15				AF Amp. Cath. Bypass
C3	10	25		PRS25/10	BR102A			TVA-5	Hor. Output Cath. Byp.
C4	10	25		PRS25/10	BR102A			TVA-5	Vert.Output Cath. Byp.
C5	4	25		PRS150/4	BR550			TVA-13	AFC Filter
C6	100	25		PRS25/100	BRH251A			TVA-8	V. Output Cath. Bypass
C7	470					GP2K-500			Ant. Coupling
C8	470					GP2K-500			RF Fil. Bypass
C9	470					GP2K-500			RF Bypass
C10	15					GP1K-15			AF Amp. Coupling
C11	3-12					557NPO3-12			RF Var. Padder
C12	3-12					557NPO3-12			RF Var. Trimmer
C13	3-12					557NPO3-12			RF Var. Padder
C14	15					GP1K-15			RF Coupling
C15	470					GP2K-500			RF Bypass
C16	470					GP2K-500			Mixer Screen Bypass
C17	470					GP2K-500			Mixer Fil. Bypass
C18	1								Osc. Coupling
C19	5					NPOK-5			Osc. Grid Cap.
C20	2-12					TS2A-N500 2-12			Osc. Var. Trimmer
C21	470					GP2K-500			Osc. Fil. Bypass
C22	470					GP2K-500			RF Bypass
C23	270	500		1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	IF Coupling
C24	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	1st V. IF Cath. Bypass
C25	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	1st V. IF Fil. Bypass
C26	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	1st V. IF Decoupling
C27	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	Decoupling
C28	270	500		1468-00025	5W5T25	GP2K-250	MW.5-325	1FM-325	IF Coupling
C29	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd V. IF Cath. Bypass
C30	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd V. IF Fil. Bypass
C31	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd V. IF Decoupling
C32	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	Decoupling
C33	27	500		1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	IF Coupling
C34	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	3rd V. IF Cath. Bypass
C35	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	3rd V. IF Fil. Bypass
C36	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	3rd V. IF Decoupling
C37	270	500		1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	IF Coupling
C38	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	4th V. IF Cath. Bypass
C39	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	4th V. IF Fil. Bypass
C40	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	4th V. IF Decoupling
C41	2000			1467-002	1W5D2	GP2M-002	MW.5-22	1FM-22	Decoupling
C42	270	500		1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	IF Coupling
C43	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	V. Det. Fil. Bypass
C44	.05	600		P68S-05	GT6S5		ST-6-05	TM-15	Video Coupling
C45	.05	600		P68S-05	GT6S5		ST-6-05	TM-15	" "
C46	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	RF Bypass
C47	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	Decoupling
C48	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	"
C49	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	1st S. IF Cath. Bypass
C50	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	1st S. IF Decoupling

CAPACITORS (CONT.)

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: VIDEODYNE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C51	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	Decoupling
C52	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd S. IF Cath. Bypass
C53	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	2nd S. IF Decoupling
C54	75			1468-000075	5W5Q7	GP1K-75	MO.5-31	1FM-475	Limiter Grid Filter
C55	1000			1468-001	1W5D1	GP2L-001	MW.5-21	1FM-21	Limiter Decoupling
C56	75			1468-000075	5W5Q7	GP1K-75	MO.5-31	1FM-475	RF Bypass
C57	750			1468-00075	1W5T8	GP2K-750	MW.5-38	1FM-38	De-emphasis
C58	.01	400		P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C58	.01	400		P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	" "
C59	.005	600		P688-0005	GT6S5		MO.5-35	1FM-35	Tone Compensation
C61	.01	400		P483-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C62	.05	600		P688-05	GT6S5		ST-6-05	TM-15	Decoupling *
C63	.01	600		P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	Sync. Coupling
C64	.05	600		P688-05	GT6S5		ST-6-05	TM-15	" "
C65	.002	600		P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	" "
C66	.005	600		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Vert. Sync. Coupling
C67	.005	600		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Integrator Net.
C68	.005	600		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Integrator Net.
C69	.005	600		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	" "
C70	.005	600		P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Vert. Osc. Grid Cap.
C71	.1	600		P688-1	GT6P1		ST-6-1	TM-1	Vert. Osc. Plate Dec.
C72	.05	600		P688-05	GT6S5		ST-6-05	TM-15	Vert. Discharge
C73	.1	600		P688-1	GT6P1		ST-6-1	TM-1	Vert. Sweep Coupling
C74	.05	600		P688-05	GT6S5		ST-6-05	TM-15	Vert. Output Sec. Shunt
C75	500	500		1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Pulse Forming
C76	500	500		1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Hor. Sync. Coupling
C77	150	500		1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	" " "
C78	2000			1467-002	1W5D2	GP2M-002	MW.5-22	1FM-22	AFC Feedback
C79	.1	600		P683-1	GT6P1		ST-6-1	TM-1	AFC Filter
C80	200	500		1468-0002	5W5T2	GP2K-200	MO.5-32	1FM-32	Hor. Osc. Grid Cap.
C81	.1	600		P688-1	GT6P1		ST-6-1	TM-1	Hor. Osc. Plate Dec.
C82	270	500		1468-00025	5W5T25	GP2K-250	MO.5-325	1FM-325	Hor. Discharge
C83	.01	600		P688-01	GT6S1	GP2-335-01	ST-6-01	TM-11	Hor. Sweep Coupling
C84	2000			1467-002	1W5D2	GP2M-002	MW.5-22	1FM-22	Hor. Discharge
C85	150	500		1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	" " "
C86	.05	600		P688-05	GT6S5		ST-6-05	TM-15	Hor. Output Screen Byp.
C87	.035	600							Damper Filter
C88	.05	600		P68.-05	GT6S5		ST-6-05	TM-15	" "
C89	500	10000				410-500			HV Filter
C90	.1	600		P688-1	GT6P1		ST-6-1	TM-1	Pic. Tube Cath. Dec.
C91	270	500							Fixed Trimmer †
C92	270	500							" " †

* Some models use .1MFD in this application.
† Not used in all models.

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: VIDEODYNE PART No.	IRC PART No.	CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½		Q13-133	M-60-Z	Volume control
B	Switch			76-1	SW-A	Attach to R1A Per Instructions
R2A	10KΩ	½		Q16-116	M-30-V	Contrast control
B	Switch			76-1	SW-A	Attach to R2A Per Instructions
R3	100KΩ	½		Q11-128	M-48-S	Horiz. Drive control
R4	500KΩ	½		Q11-114	M-19-S	Horiz. Linearity control
R5	100KΩ	½		Q11-128	M-49-S	Horiz. Hold control
R6	2000Ω	4			10-2000	Focus control (Wire Wound)
R7	100KΩ	½		Q11-128	M-49-S	Brightness control
R8	25Ω	2		W-25	43-25	Horiz. centering control
R9	500Ω	½		Q11-114	M-19-S	Vert. Linearity control
R10	2 Meg.	½			M-83-S	Vert. drive control
R11	1 Meg.	½		Q11-137	M-61-S	Vert. hold control

RESISTORS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: VIDEODYNE PART No.	IRC PART No.	IDENTIFICATION CODES
					ALL RESISTORS ARE ± 10% UNLESS OTHERWISE STATED.
R12	220Ω	½			RF Cathode
R13	10KΩ	1			RF Plate
R14	1 Meg.	½			Mixer Grid
R15	100KΩ	½			" "
R16	330KΩ	½			Mixer Screen
R17	12KΩ	½			Osc. Grid
R18	10KΩ	1			Osc. Plate
R19	5000Ω	5			Plate Decoupling (Wire Wound)
R20	10KΩ	½			1st Video IF Grid
R21	120Ω	½			1st Video IF Cathode
R22	10KΩ	1			1st Video IF Decoupling
R23	120Ω	½			Decoupling Network
R24	120Ω	½			"
R25	10KΩ	½			2nd Video IF Grid
R26	120Ω	½			2nd Video IF Cathode
R27	10KΩ	1			2nd Video IF Decoupling
R28	120Ω	½			Decoupling Network
R29	4700Ω	½			3rd Video IF Grid 5%
R30	120Ω	½			3rd Video IF Cathode
R31	2700Ω	½			3rd Video IF Plate
R32	10KΩ	1			3rd Video IF Decoupling
R33	120Ω	½			4th Video IF Cathode
R34	5600Ω	½			4th Video IF Plate
R35	10KΩ	1			4th Video IF Decoupling
R36	22KΩ	½		BTS-22K	Sync. Amp. Grid
R37	3300Ω	½		BTS-3300	" "
R38	22KΩ	½		BTS-22K	Phase Correction
R39	470KΩ	½		BTS-470K	Voltage Divider
R40	470KΩ	½		BTS-470K	Picture Tube Grid
R41	270Ω	1		BW-1-270	Video Output Cathode
R42	3900Ω	2		BP-2-3900	Video Output Plate
R43	47KΩ	½		BTS-47K	Filter

RESISTORS (CONT.)

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: VIDEODYNE PART No.	IRC PART No.	IDENTIFICATION CODES
R44	750Ω	25		DHA-750#	Filter Adjustable Wire Wound
R45	120Ω	½			1st Sound IF Cathode
R46	10KΩ	1			1st Sound IF Decoupling
R47	120Ω	½			2nd Sound IF Cathode
R48	10KΩ	1			2nd Sound IF Decoupling
R49	47KΩ	½			Limiter Grid
R50	47KΩ	1			Limiter Decoupling
R51	100KΩ	½		BTS-100K	Disc. Diode Load
R52	100KΩ	½		BTS-100K	Disc. Diode Load
R53	100KΩ	½		BTS-100K	De-emphasis
R54	2.2 Meg.	½		BTS-2.2 Meg.	1st AF Grid
R55	270KΩ	½		BTS-270K	1st AF Plate
R56	22KΩ	½		BTS-22K	1st AF Plate Decoupling
R57	1000Ω	½		BTS-1000	2nd AF Cathode
R58	270KΩ	½		BTS-270K	2nd AF Plate
R59	470KΩ	½		BTS-470K	Output Grid
R60	270Ω	1		BW-1-270	Output Cathode
R61	22KΩ	½		BTS-22K	Sync. Amp. Plate
R62	100KΩ	½		BTS-100K	Sync. Amp. Plate Decoupling
R63	2200Ω	½		BTS-2200	Sync. Amp. Cathode
R64	470KΩ	½		BTS-470K	Sync. Clipper Grid
R65	22KΩ	½		BTS-22K	Sync. Clipper Plate
R66	470KΩ	½		BTS-470K	Sync. Amp. Grid
R67	1000Ω	½		BTS-1000	Sync. Amp. Cathode
R68	22KΩ	½		BTS-22K	Sync. Amp. Plate
R69	470KΩ	½		BTS-470K	Phase Inv. Grid
R70	22000Ω	½		BTS-2200	Phase Inv. Cathode
R71	4700Ω	½		BTS-4700	" " "
R72	4700Ω	½		BTS-4700	Phase Inv. Plate
R73	100KΩ	½		BTS-100K	AFC Diode Load
R74	100KΩ	½		BTS-100K	AFC Diode Load
R75	4700Ω	½		BTS-4700	RF Choke Shunt
R76	1200Ω	½		BTS-1200	AFC Filter Network
R77	2.2 Meg.	½		BTS-2.2 Meg.	Voltage Divider
R78	47KΩ	1		BTA-47K	AFC Feedback
R79	56KΩ	½		BTS-56K	Voltage Divider
R80	1 Meg.	½		BTS-1 Meg-5%	" " 5%
R81	10KΩ	½		BTS-10K	Integrator
R82	10KΩ	½		BTS-10K	"
R83	10KΩ	½		BTS-10K	"
R84	100KΩ	½		BTS-100K	Vert. Osc. Plate
R85	1 Meg.	½		BTS-1 Meg-5%	Vert. Discharge Grid 5%
R86	1 Meg.	½		BTS-1 Meg-5%	Vert. Discharge Plate 5%
R87	4700Ω	½		BTS-4700	Vert. Peaking
R88	1 Meg.	½		BTS-1 Meg.	Vert. Output Grid
R89	100KΩ	½		BTS-100K	Voltage Divider
R90	100KΩ	½		BTS-100K	Horiz. Osc. Plate Decoupling
R91	100KΩ	½		BTS-100K	Horiz. Osc. Grid
R92	470KΩ	½		BTS-470K	Horiz. Discharge Plate
R93	56KΩ	1		BTA-56K	Horiz. Peaking
R94	1 Meg.	½		BTS-1 Meg.	Horiz. Output Grid
R95	100Ω	2		BW-2-100	Horiz. Output Cathode
R96	10KΩ	5		AB-10K	Horiz. Output Screen (Wire Wound)
R97	120Ω	½			Parasitic Supp.
R98	10KΩ	10		AB-10K	Damper Filter (Wire Wound)
R99	3.3Ω	1			HV Rect. Filament 5%
R100	12KΩ	½			RF Plate Coil Shunt
R101	12KΩ	½			Mixer Grid Coil Shunt

Set adjustable metal band to 650Ω from one end of resistor.

TRANSFORMER (POWER)

ITEM No.	RATING: PRI.	RATING: SEC. 1	RATING: SEC. 2	RATING: SEC. 3	REPLACEMENT DATA: VIDEODYNE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.
T1	117VAC @ 1.76A	580VCT @ .22 ADC	5VAC @ 3A	5VAC @ 2A		P-8152# P-6134$	TP-355 ††	P-3156#
		SEC. 4 6.3VAC @ 9A	SEC. 5 6.3VAC @ .6A					

Add series resistor to reduce plate voltage.
†† Mount vertically with universal mounting brackets.
$ This transformer used to replace the SEC. 5 winding on the original transformer.

TRANSFORMER (SWEEP CIRCUITS)

ITEM No.	RATING: DC RESISTANCE PRI.	RATING: DC RESISTANCE SEC.	REPLACEMENT DATA: VIDEODYNE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	NOTES
T2	7.6Ω	3.4Ω		A-8110		A-3002	Hor.Block Osc.Trans.
T3	68Ω	260Ω		A-8111	TB0-1	A-3000	Vert.Block Osc.Trans.
T4	320Ω Tap @ 175Ω	SEC. 1 10.5Ω Tap @ .5Ω SEC. 2 0Ω		A-8117	TF3-1		Hor.Output Trans.
T5	550Ω	7.2Ω		A-8115	TB0-1	A-3035	Vert. Output Trans.
T6A	14Ω	DY-1					Hor.Deflection Yoke
B	59Ω						Vert.Deflection Yoke
T7	255Ω	FC-10					Focus Coil

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: VIDEODYNE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	INSTALLATION NOTES
T8	5900Ω	3.2Ω	480Ω	.2Ω		A-3877	RO-9 ‡	A-2930	‡ Drill one new mounting hole.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATING		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	VIDEODYNE PART No.	JENSEN PART No.	QUAM PART No.	
SP1	PM	3.2Ω			46A1	
	CONE DIA.	V. C. DIA.				
SP2	4" x 6"	9/16"				

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	VIDEODYNE PART No.	STANCOR PART No.	CHICAGO PART No.	MERIT PART No.	
L1	.220A	96Ω	4 Henries		C-2325	TR-4225‡	C-2991‡	‡ Drill one new mounting hole.

COILS (RF-IF)

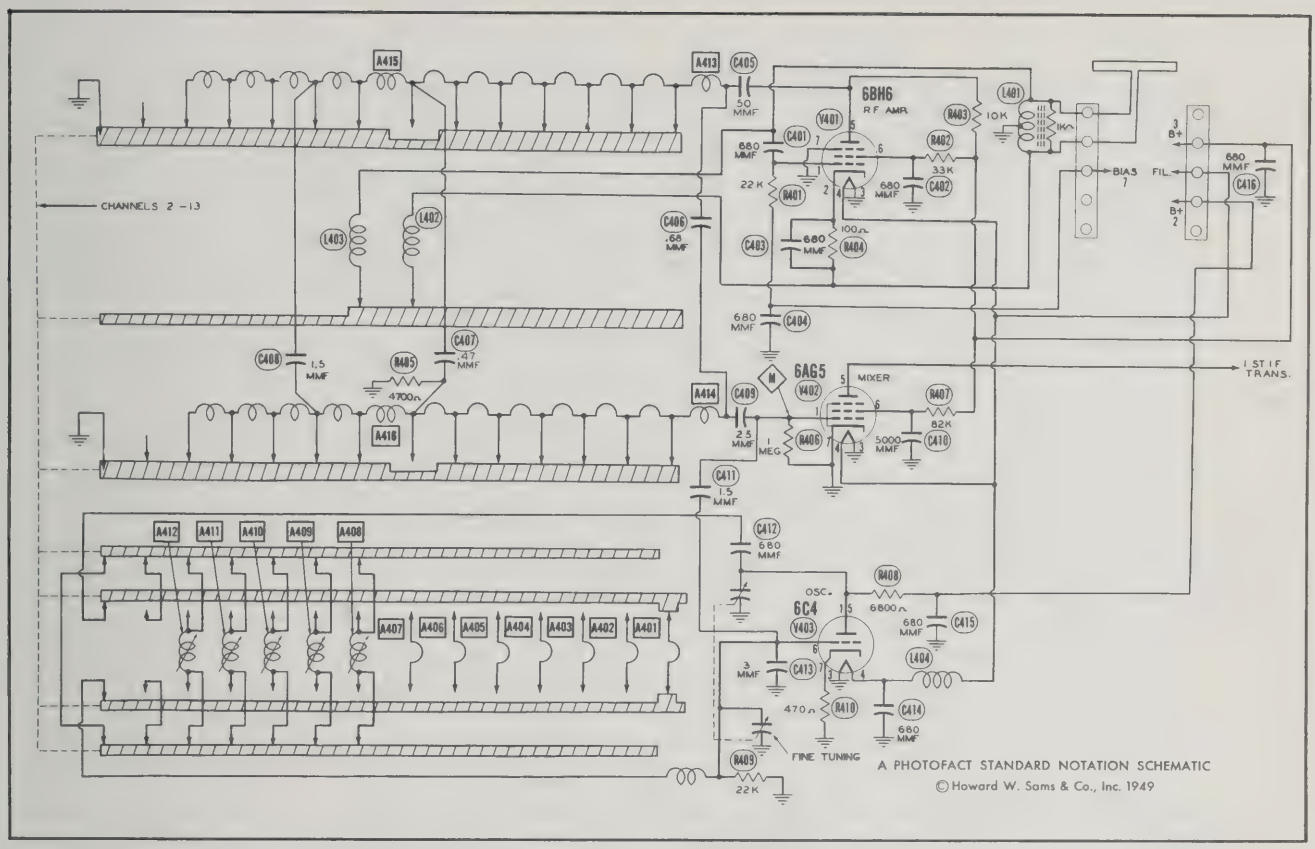
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	VIDEODYNE PART No.	MEISSNER PART No.	
L2	Ant. Coil	0Ω				Part of tuner
L3	RF End. Inductor	0Ω				" " "
L4	RF Plate	0Ω				" " "
L5	Band Pass	0Ω				" " "
L6	Mixer End Inductor	0Ω				" " "
L7	Mixer Grid	0Ω				" " "
L8	Osc. End Inductor	0Ω				" " "
L9	Osc.	0Ω				" " "
L10	Osc. Shunt	0Ω				" " "
L11	1st Video IF and Sound Take-Off	.1Ω				
L12	2nd Video IF	.1Ω				
L13	3rd Video IF	.1Ω				
L14	4th Video IF	.1Ω				
L15	5th Video IF	.1Ω				
L16	Fil. Choke	.1Ω				
L17	Fil. Choke	.1Ω				
L18	Fil. Choke	.1Ω				
L19	Fil. Choke	.1Ω				
L20	Video Det. Cath. Chk.	13Ω				
L21	Fil. Choke	.1Ω				
L22	Peaking	7Ω				Wound on 22KΩ resistor
L23	Peaking	8Ω				Wound on 22KΩ resistor
L24	Peaking	5Ω				
L25	1st Sound IF Trans.	.1Ω	.1Ω			
L26	2nd Sound IF Trans.	.1Ω	.1Ω			
L27	Disc. Trans	.1Ω	.1Ω			
L28	Hor. AFC.	36Ω				
L29	Hor. Linearity	36Ω				

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					VIDEODYNE PART No.		
M1	Bayonet	6-8V	.25	Blue			Type #44

MISCELLANEOUS

ITEM No.	PART NAME	VIDEODYNE PART No.	NOTES
M2	Fuse		5A
M3	Ion Trap		
M4	Tuner		Dumont Input tuner used on all FM models.
M5	Tuner	TT2	Sarkes-Tarzian tuner used on all TV models.



RF TUNER

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	
V401	RF Amp.	6BH6	7CM	
V402	Mixer	6AG5	7BD	
V403	Oscillator	6C4	6BG	

RESISTORS

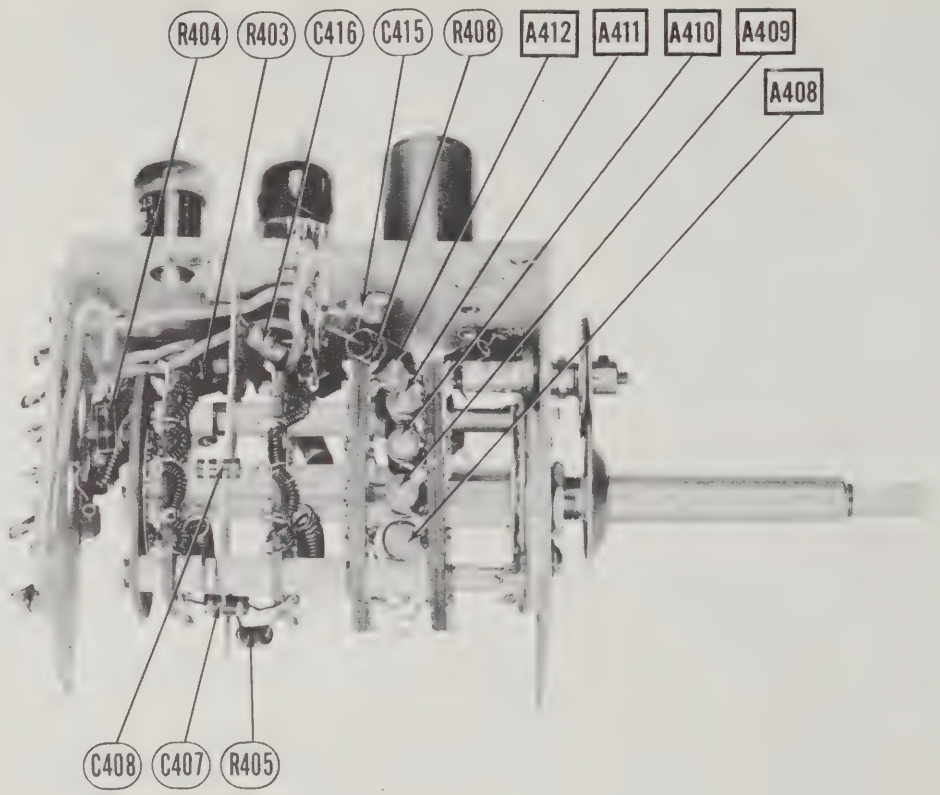
ITEM No.	RATING: RESISTANCE	RATING: WATTS	IDENTIFICATION
R401	22KΩ	½	RF Grid
R402	33KΩ	½	RF Screen
R403	10KΩ	1	RF Plate
R404	100Ω	½	RF Cathode
R405	4700Ω	½	Mixer Coil Shunt
R406	1 Meg.	½	Mixer Grid
R407	82KΩ	½	Mixer Screen
R408	6800Ω	1	Osc. Plate
R409	22KΩ	½	Osc. Grid
R410	470Ω	½	Osc. Cathode

CAPACITORS

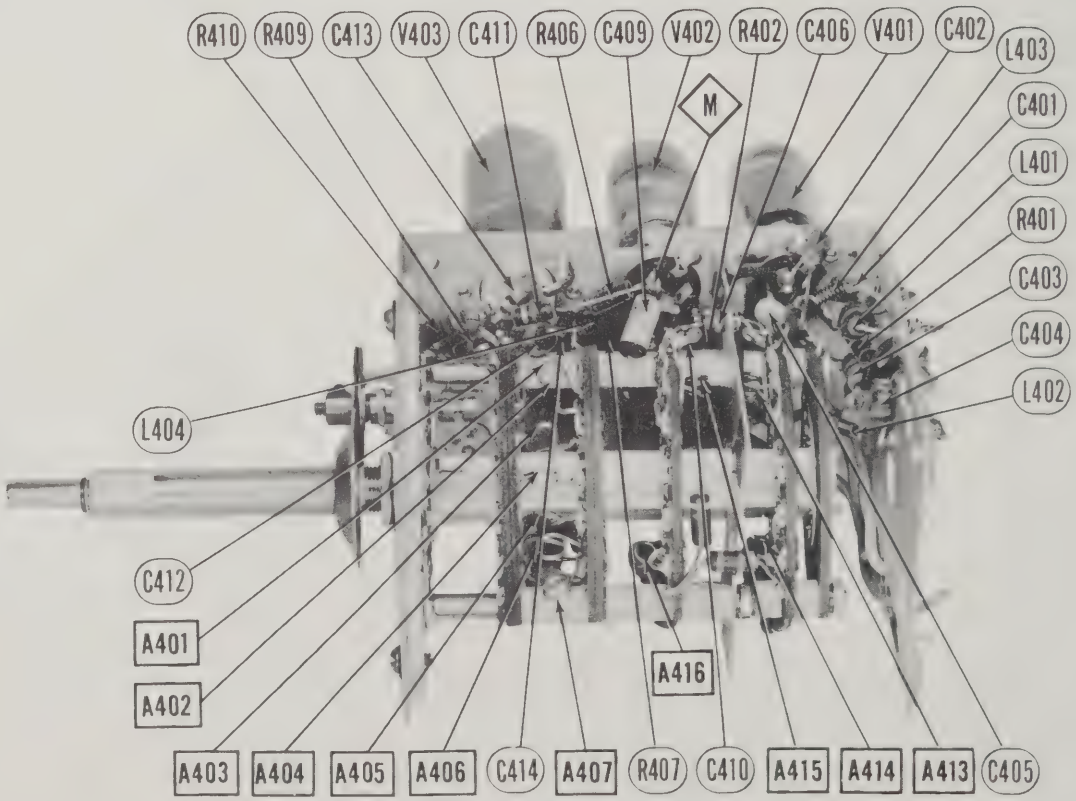
ITEM No.	RATING: CAP.	RATING: VOLT	IDENTIFICATION
C401	680		RF Coupling
C402	680		RF Screen Bypass
C403	680		RF Cathode Bypass
C404	680		Bias Filter
C405	50		RF Coupling
C406	.68		RF Coupling
C407	.47		RF Coupling
C408	1.5		RF Coupling
C409	2.5		RF Coupling
C410	5000		Mixer Screen Bypass
C411	1.5		Osc. Coupling
C412	680		Osc. Feedback
C413	3		Osc. Feedback
C414	680		Filament Bypass
C415	680		RF Bypass
C416	680		RF Bypass

COILS

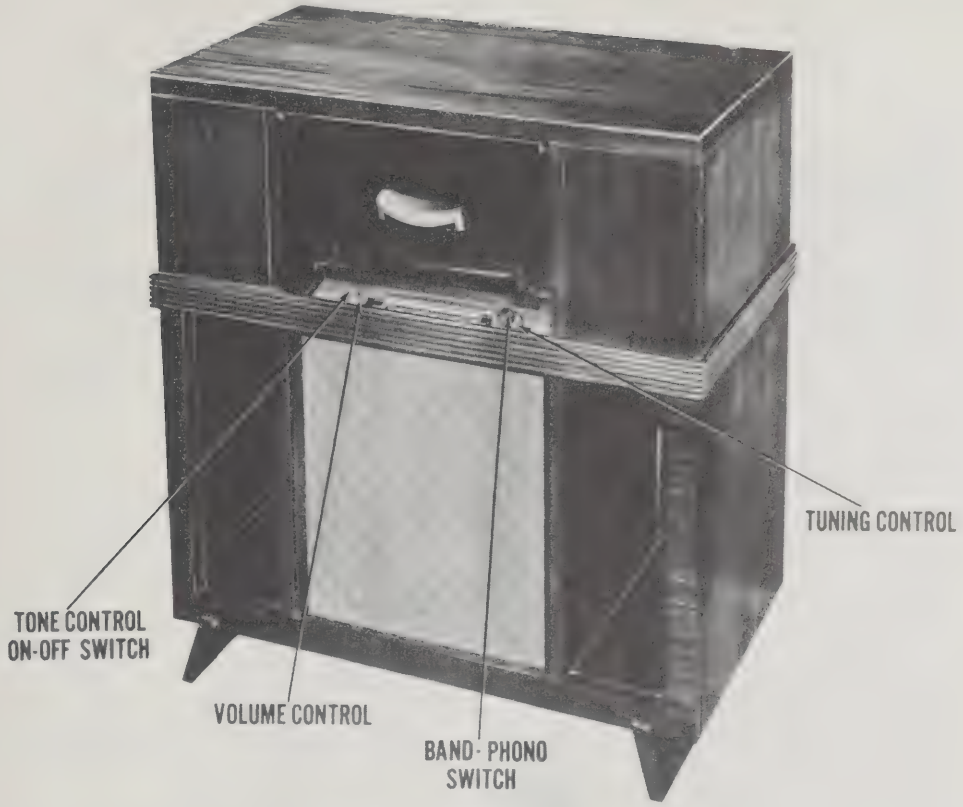
ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	
L401	Ant. Input	0Ω		Wound on powdered iron core & 1000Ω resistor
L402	Ant. Input High Band	0Ω		
L403	Ant. Input High Band	0Ω		
L404	Fil. Choke	0Ω		



RF TUNER-LEFT SIDE

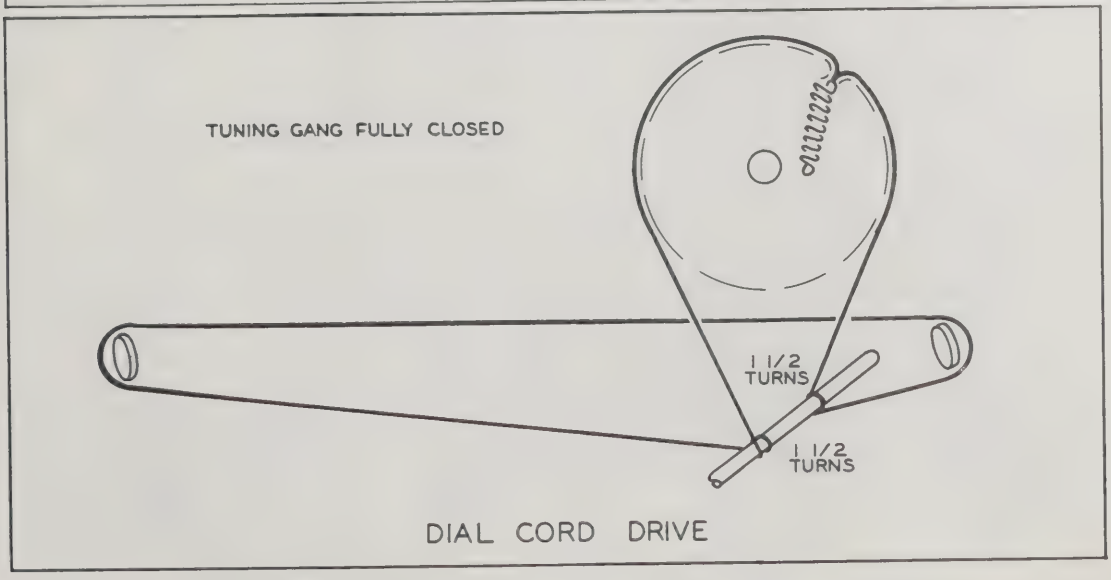


RF TUNER-RIGHT SIDE



WESTINGHOUSE MODEL H-199

TRADE NAME	Westinghouse, Model H-199 (Ch. V-2137-1)
MANUFACTURER	Westinghouse Electric Corp., Receiver Div., Sunbury, Pa.
TYPE SET	AC Operated Combination Phono-Radio, AM-FM Superheterodyne Receiver with Loop Antenna.
TUBES(EIGHT)	Types 12AT7 FM RF-Mixer, 6BE6 AM Conv.-FM Osc., 6BA6 1st IF Amp., 6BA6 FM 2nd IF Amp., 6AL5 Ratio Det., 6AV6 DET-AVC-AF, 6V6GT Power Output, 5Y3GT Rectifier.
POWER SUPPLY	105-120 Volts AC — RATING: .76 Amp. @ 117 Volts AC
TUNING RANGE-BROADCAST	540-1600KC — FREQ. MOD. 88-108MC



DIAL CORD DRIVE

HOWARD W. SAMS & CO., INC. • Indianapolis Indiana

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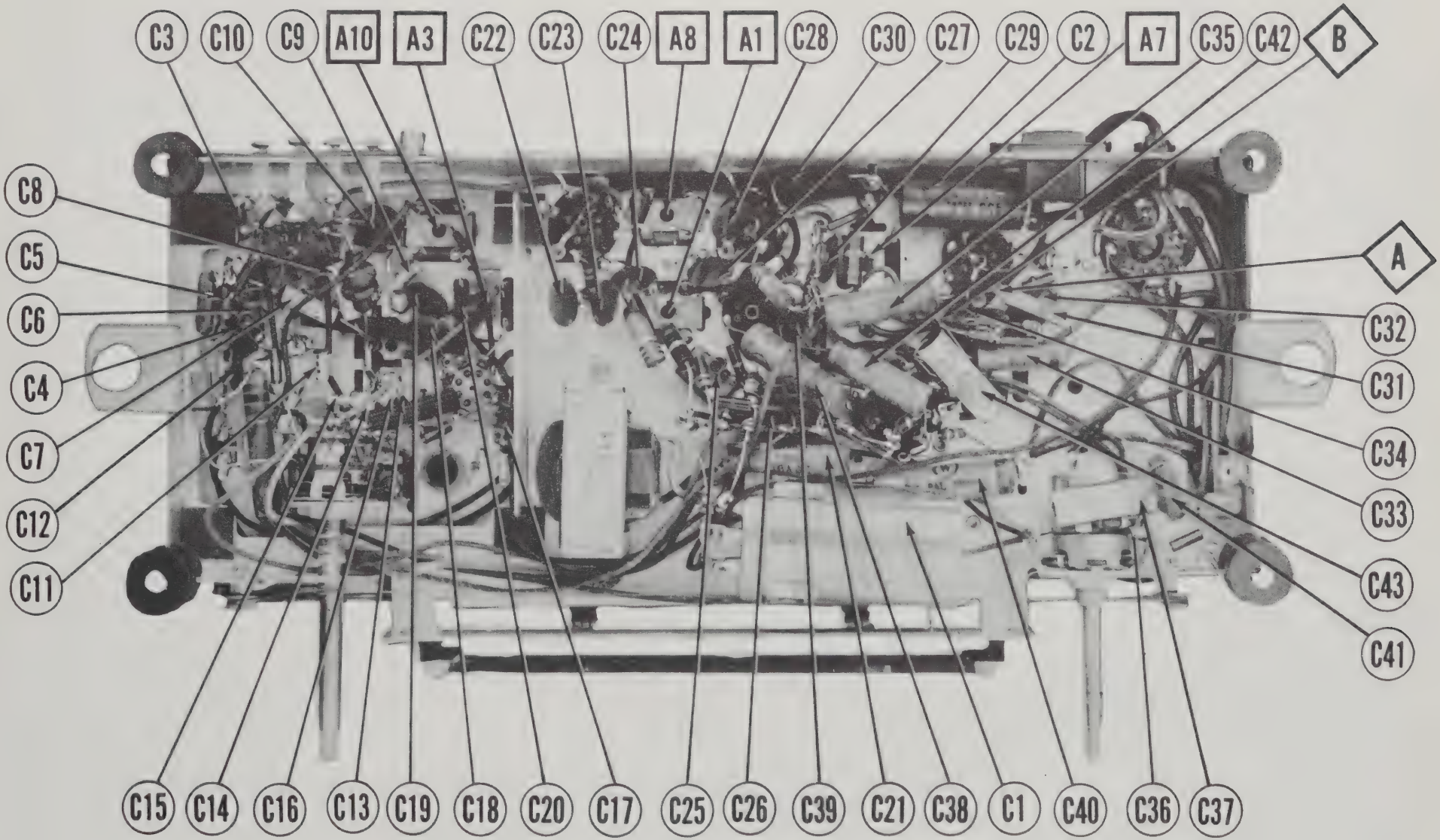
DATE 9/49 4917-16 SET #69 FOLDER #16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C19
C18
C20
C17
C25
C26
C39
C21
C38
C1
C40
C36
C37

L20
R21
R27
R25
R26
R23
R24
R28
R1
R22
R20
L19
R15
R6
L18
R7
L9
R5
L4
L5
R2
L10
R3
R10
R13
R4
R12
M4
R11
R9
L12
L11
R8
L8
L1
R17
R16
R18
R19
R14
R29
R33
R30
R31
R32

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: STANDARD REPLACEMENT	RMA BASE TYPE	INSTALLATION NOTES
V1	FM RF Amp.-FM Mixer	12AT7	12AT7	9A	
V2	AM Conv-FM Osc.	6BE6	6BE6	7CH	
V3	1st IF Amp.	6BA6	6BA6	7BK	
V4	FM 2nd IF Amp.	6BA6	6BA6	7BK	
V5	Ratio Det.	6AL5	6AL5	6BT	
V6	DET-AVC-AF	6AV6	6AV6	7BT	
V7	Power Output	6V6GT	6V6GT	7AC	
V8	Rectifier	5Y3GT	5Y3GT	5T	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP.	RATING: VOLT	REPLACEMENT DATA: WESTINGHOUSE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C1A	20	400	V-6121	AF444J4A	UP		DY-404	EL-442	◓ Filter
B	20	400			22245C				■ Filter
C	10	350							▲ Osc. Anode Bypass
D	20	25							Output Cath. Bypass
C2	4	450	V-4885	PRS150/4	BR415		M-4-150	UT-41	Stabilizing Cap
C3	100		R3CC305L 101M	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Ant. Coupling
C4	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	FM RF Cath. Bypass
C5	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AVC Filter
C6	470		R5CC21ZY 471M	1468-005	5W5T5	GP1K-500	MO.5-35	1FM-35	AVC Filter
C7	33		R3CC26CK 330M	1468-00004	5W5Q3	GP1K-50	MO.5-43	1FM-44	RF Coupling
C8	33		R3CC26CK 330M	1468-00004	5W5Q3	GP1K-50	MO.5-43	1FM-44	RF Coupling
C9	100		R3CC30SL 101J	1469-0001	5R5T1	NP0M-100	MOS.5-31	MS-31	Fixed Trimmer
C10	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	Mixer Plate Dec.
C11	2		R2CC30CK 020D						Osc. Coupling
C12	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	FM RF Plate Dec.
C13	470		R5CC21ZY 471M	1468-0005	5W5T5	GP2K-500	MW.5-35	1FM-35	RF Coupling
C14	27		R3CC30CK 270K	1468-000025	5W5Q3	GP1K-25	MO.5-43	MS-425	Osc. Grid Cap
C15	5		R2CC30CK 050D	1469-000005	5R5V5	NP0K-5	MOS.5-55	MS-55	Osc. Feedback
C16	2		R2CC30CK 020D						Voltage Divider
C17	470		R5CC21ZY 471M	1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Osc. Anode Bypass
C18	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AM Conv. Fil. Bypass
C19	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AM Conv. Plate Dec.
C20	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	AVC Filter
C21	.02	200	RCP10W22 03A	P488-02	GT2S2		ST-4-02	TM-12	AVC Filter
C22	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st IF Cath. Bypass
C23	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st IF Screen Bypass
C24	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	1st IF Plate Dec.
C25	100	500	RCM20A101M	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Diode RF Filter
C26	100	500	RCM20A101M	1468-0001	5W5T1	GP1K-100	MO.5-31	1FM-31	Diode RF Filter
C27	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Cath. Bypass
C28	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Screen Bypass
C29	5000		V-5596	1467-005	1D5D5	GP2M-005	MW.5-25	1FM-25	2nd IF Plate Dec.
C30	.01	200	V-5040-13	P488-01	GT2S1	GP2-335-01	ST-4-01	TM-11	2nd IF Fil. Bypass
C31	150	500	RCM20A151J	1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	Diode Load Cap. Note
C32	150	500	RCM20A151J	1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	Diode Load Cap. Note
C33	.002	600	RCP10W62 02A	P688-002	GT6D2	GP2M-002	ST-6-002	TM-22	De-emphasis
C34	.01	200	V-5040-13	P488-01	GT2S1	GP2-335-01	ST-4-01	TM-11	DAVC Filter
C35	.01	400	RCP10W410 3A	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C36	470	500	RCM20A471M	1468-0005	5W5T5	GP2K-500	MO.5-35	1FM-35	Tone Compensation
C37	.05	200	RCP10W250 3A	P288-05	GT2S5		ST-4-05	TM-15	Tone Compensation

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (OUTPUT)

ITEM No.	RATING: IMPEDANCE PRI.	RATING: IMPEDANCE SEC.	RATING: DC RES. PRI.	RATING: DC RES. SEC.	REPLACEMENT DATA: WESTING-HOUSE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
T2	5000Ω	3.5Ω	400Ω	.5Ω	V5798	A-3823	RO-9†	A-2902	† Drill One New Mtg. Hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: JENSEN PART No.	REPLACEMENT DATA: QUAM PART No.	INSTALLATION NOTES
	FIELD	V.C. IMP.		ST-119‡		
SP1	PM	3.5Ω	V-5571	MOD.P10-T	10A31	‡Replace Output Transformer to Match 6-8Ω Voice Coil.
	CONE DIA.	V.C. DIA.				
SP2	9-1/2"	3/4"				

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (0 CURRENT 1000 ↶)	REPLACEMENT DATA: WESTING-HOUSE PART No.	REPLACEMENT DATA: STANCOR PART No.	REPLACEMENT DATA: CHICAGO PART No.	REPLACEMENT DATA: MERIT PART No.	INSTALLATION NOTES
L1	.112A	240Ω	5.5 Henries	V-6161		R-1365	C-2977	

R F COILS

ITEM No.	USE	DC RES. PRI.	DC RES. SEC.	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA: MEISSNER PART No.	
L2	AM Loop Ant	0Ω		V5982-2		
L3	FM Dipole Ant.	0Ω		V5986-5		
L4	AM Ant. Loading	2Ω		V6157		
L5	RF Choke	0Ω		V4886-10		
L6	FM Ant.Coil	0Ω		V6139		
L7	FM Osc.Coil	0Ω		V6138		
L8	AM Osc.Coil	9Ω		V6164	14-1060	
L9	Parasitic Suppressor	0Ω		V4886-6		4 Turns Of Enameled Wire On Resistor
L10	RF Choke	1.5Ω		V4886-4		
L11	Parasitic Suppressor	0Ω		V4886-7		2 Turns Of Bare Wire On Resistor
L12	RF Choke	0Ω		V4886-2		1.1 Micro Henries
L13	1st FM IF	.5Ω	.5Ω	V6142		
L14	1st AM IF	16Ω	16Ω	V6130	16-6678	
L15	2nd FM IF	.5Ω	.5Ω	V6129		
L16	2nd AM IF	16Ω	16Ω	V6130	16-6678	
L17	Ratio Det.	1Ω	0Ω	V6128		
L18	Filament Choke	0Ω		V4886-2		1.1 Micro Henries
L19	Filament Choke	0Ω		V4886-2		1.1 Micro Henries
L20	Filament Choke	0Ω		V4886-1		14 Micro Henries

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA: WESTINGHOUSE PART No.	REPLACEMENT DATA	NOTES
M1	Bayonet	6-8	.15	Brown	47		Type #47
M2	Bayonet	6-8	.15	Brown	47		Type #47

PARTS LIST AND DESCRIPTIONS (Continued)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA WESTINGHOUSE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	SOLAR PART No.	SPRAGUE PART No.	IDENTIFICATION CODES AND INSTALLATION NOTES
C38	.01	400	RCP10W410 3A	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C39	150	500	RCM20A151M	1468-00015	5W5T15	GP2K-150	MO.5-315	1FM-315	AF Plate Bypass
C40	.03	400	RCP10W430 3A	P488-03	GT4S3		ST-6-03	TM-13	AF Plate Dec.
C41	680	500	RCM20A681M	1468-00075	1W5T7	GP2K-750	MO.3-37	1FM-37	Tone Compensation
C42	.01	400	RCP10W410 3A	P488-01	GT4S1	GP2-335-01	ST-4-01	TM-11	Audio Coupling
C43	.005	600	RCP10M650 2A	P688-005	GT6D5	GP2M-005	ST-6-005	TM-25	Output Plate Bypass

Note. When Either Item C31 Or C32 Are Replaced, Replace Both With Capacitors Of Equal Value.

RESISTORS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA IRC PART No.	IDENTIFICATION CODES
R2	470KΩ	½	RC10AE474M	BTS-470K	FM RF Grid
R3	82Ω	½	RC10AE820K	BW-½-82	FM RF Cathode
R4	5600Ω	1	RC30AE562K	BTA-5600	FM RF Plate
R5	470KΩ	½	RC10AE474M	BTS-470K	FM Mixer Grid
R6	1000Ω	½	RC10AE102K	BTS-1000	FM Mixer Plate Decoupling
R7	2200Ω	½	RC10AE222K	BTS-2200	Ant. Shunt
R8	33Ω	½	RC10AE330K		Parasitic Supp.
R9	1 Meg.	½	RC10AE105M	BTS-1 Meg.	AM Conv. Grid
R10	4700Ω	½	RC10AE472K	BTS-4700	AM Conv. Plate Decoupling
R11	22KΩ	½	RC10AE223K	BTS-22K	Osc. Grid
R12	12K	2	RC41AE123K	B-2-12K	Filter
R13	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	AVC Network
R14	1 Meg.	½	RC10AE105M	BTS-1 Meg.	AVC Network
R15	68Ω	½	RC10AE680K	BW-½-68	1st IF Cathode
R16	3300Ω	1	RC30AE332K	BTA-3300	1st IF Plate Decoupling
R17	33KΩ	1	RC30AE333K	BTA-33K	1st IF Screen Decoupling
R18	47KΩ	½	RC10AE473M	BTS-47K	Diode Filter
R19	2.2 Meg.	½	RC10AE225M	BTS-2.2 Meg.	Diode Load
R20	68Ω	½	RC10AE680K	BW-½-68	2nd FM IF Cathode
R21	3300Ω	1	RC30AE332K	BTA-3300	2nd FM IF Plate Decoupling
R22	33KΩ	1	RC30AE333K	BTA-33K	2nd FM IF Screen Decoupling
R23	220Ω	½	RC10AE221M	BW-½-220	Balancing
R24	47KΩ	½	RC10AE473M	BTS-47K	De-emphasis
R25	15KΩ	½	RC10AE153K	BTS-15K	Ratio Det. Diode Load
R26	220KΩ	½	RC10AE224M	BTS-220K	AVC Network
R27	3.3 Meg.	½	RC10AE335M	BTS-3.3 Meg.	Delayed AVC
R28	1500Ω	½	RC10AE152M	BTS-1500	Tone Compensation
R29	10 Meg.	½	RC10AE106M	BTS-10 Meg.	AF Grid
R30	470KΩ	½	RC10AE474M	BTS-470K	AF Plate
R31	150KΩ	½	RC10AE154M	BTS-150K	AF Plate Decoupling
R32	470KΩ	½	RC10AE474M	BTS-470K	Output Grid
R33	270Ω	1	RC30AE271K	BW-1-270	Output Cathode

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA IRC PART No.	REPLACEMENT DATA CLAROSTAT PART No.	INSTALLATION NOTES
R1A	500KΩ	½	V-6122			Volume control tapped @ 50KΩ } Dual
B	2 Meg.	½				Tone control and switch } Concentric

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA STANCOR PART No.	REPLACEMENT DATA CHICAGO PART No.	REPLACEMENT DATA MERIT PART No.
T1	117VAC @ .76A	620VCT .112A DC	5VAC @ 2A	6.3VAC 2.5A	V-6131		PV-120	

DATE 9/49 4917-16 SET #69 FOLDER #16

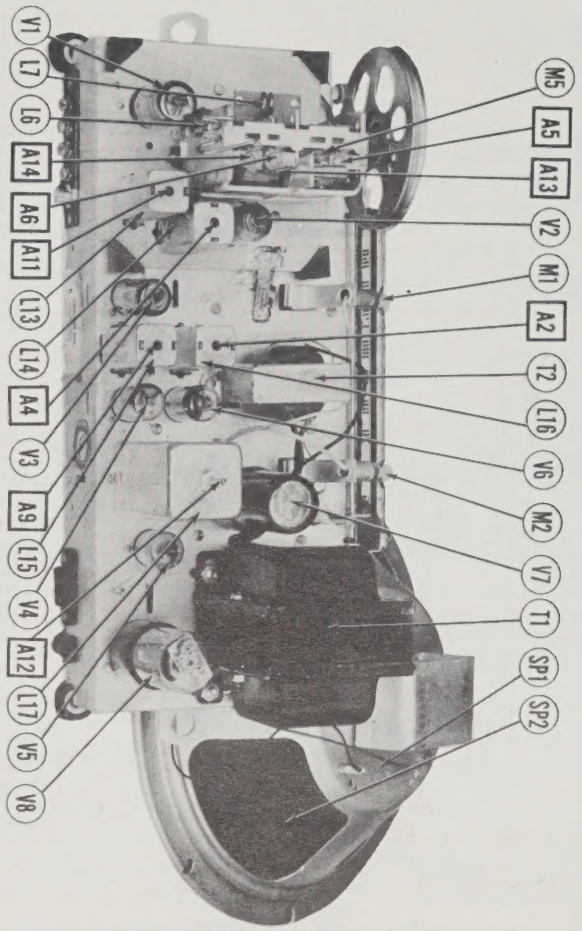
PARTS LIST AND DESCRIPTIONS (Continued)

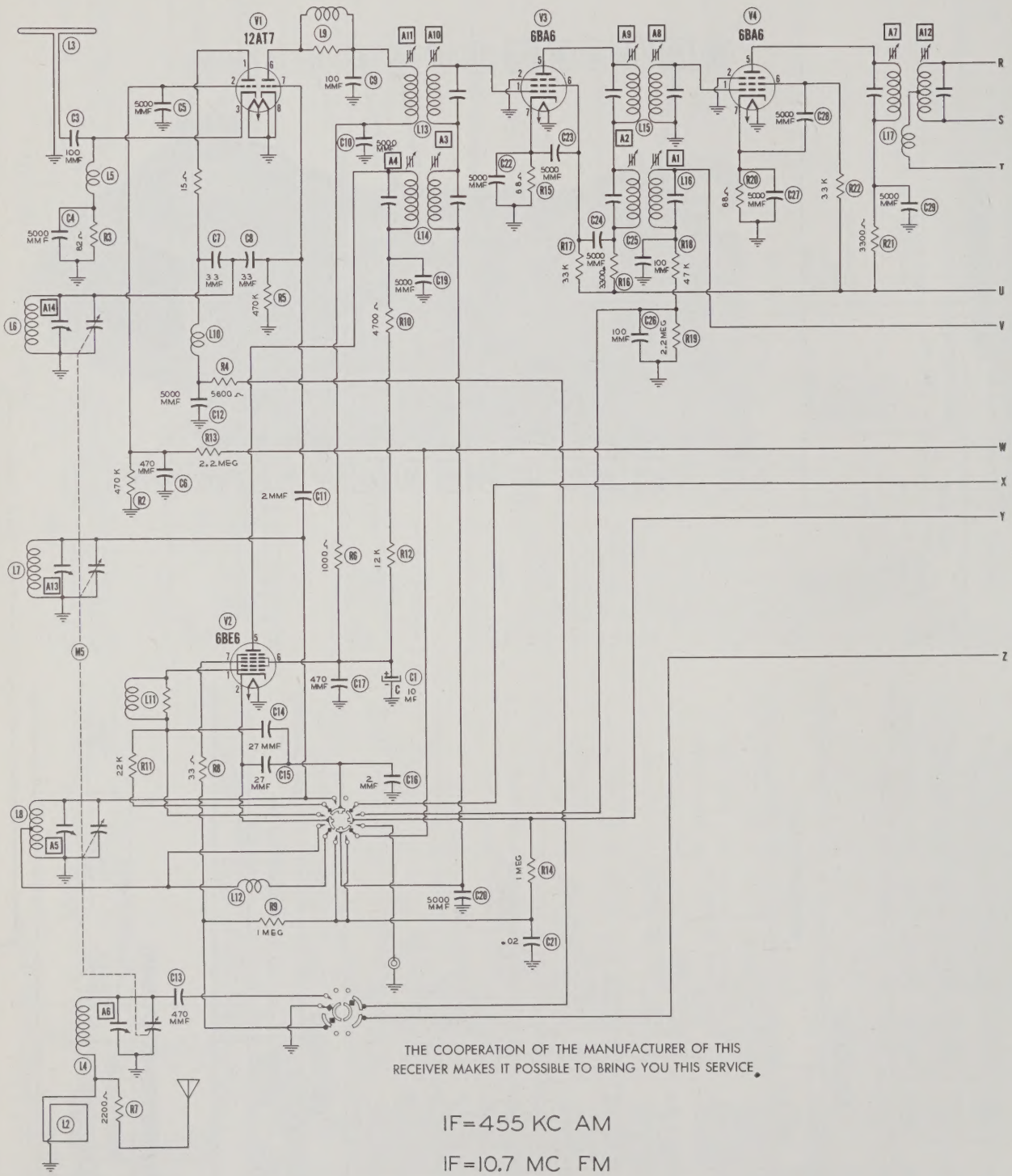
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA WESTINGHOUSE PART No.	REPLACEMENT DATA ASTATIC PART No.	REMARKS
M3		LQD-1J	

MISCELLANEOUS

ITEM No.	PART NAME	WESTINGHOUSE PART No.	NOTES
M4	Switch		Band-Phono
M5	2 Gang Var. Cap.	V6137	(48-552MMF, 37-212MMF)
	Cabinet	V1172-1	
	Dial	V6314	
	Dial Pointer	V6125	
	Knob	V6146-1	Off-On/Tone
	Knob	V6146-2	Band
	Knob	V6147-1	Volume
	Knob	V6147-2	Tuning





THE COOPERATION OF THE MANUFACTURER OF THIS RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE.

IF=455 KC AM

IF=10.7 MC FM

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 10% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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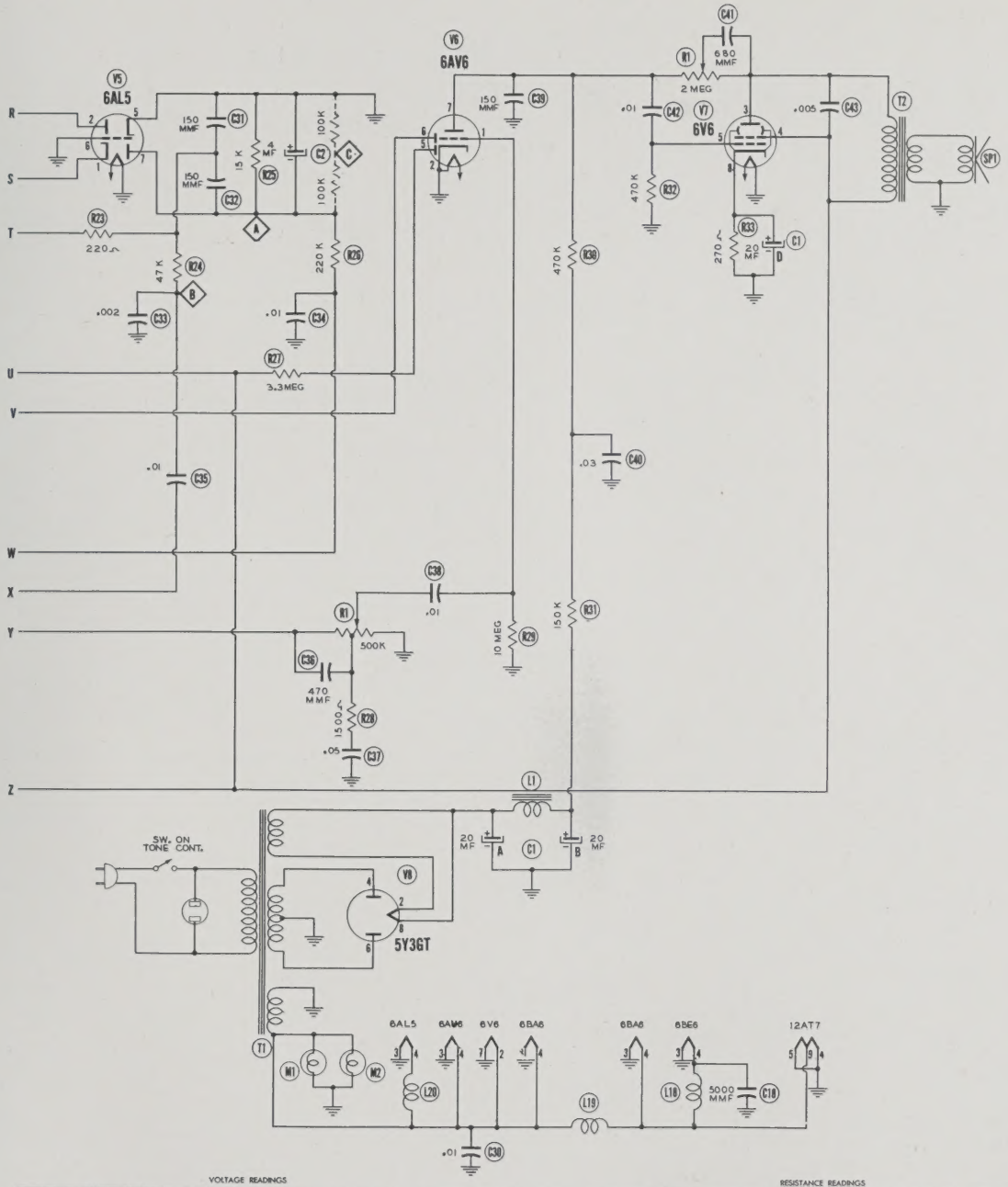

VOLTAGE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
‡V1	12AT7	200VDC	0V	1VDC	0V	0V	125VDC	-2VDC	0V	6.3VAC
V2A	6BE6	§-6.6 VDC	0V	0V	6.3VAC	250VDC	110VDC	-.1VDC		
‡ V2B	6BE6	§-.2VDC	0V	0V	6.3VAC	250VDC	125VDC	0V		
V3	6BA6	-.1VDC	0V	0V	6.3VAC	230VDC	117VDC	1.1VDC		
‡V4	6BA6	0V	0V	0V	6.3VAC	225VDC	110VDC	1.1VDC		
‡V5	6AL5	-.6VDC	-.3VDC	0V	6.3VAC	0V	0V	-.7VDC		
V6	6AV6	-.6VDC	0V	0V	6.3VAC	-.6VDC	.2VDC	90VDC		
V7	6V6GT	0V	6.3VAC	250VDC	265VDC	0V	225VDC	0V	13VDC	
V8	5Y3GT	0V	290VDC	0V	300VDC	0V	300VDC	0V	290VDC	

§TAKEN WITH VACUUM TUBE VOLTMETER.
‡ VOLTAGE AND RESISTANCE READINGS TAKEN IN FM POSITION.

RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
‡V1	12AT7	†6KΩ	470KΩ	82Ω	0Ω	0Ω	†13KΩ	470KΩ	0Ω	.1Ω
V2A	6BE6	22KΩ	1Ω	0Ω	.1Ω	†5KΩ	†12KΩ	2.5 Meg.		
‡ V2B	6BE6	22KΩ	1Ω	0Ω	.1Ω	†5KΩ	†12KΩ	33Ω		
V3	6BA6	1.5 Meg.	0Ω	0Ω	.1Ω	†3.5KΩ	†33KΩ	68Ω		
‡V4	6BA6	.5Ω	0Ω	0Ω	.1Ω	†3.5KΩ	†33KΩ	68Ω		
‡V5	6AL5	Inf.	Inf.	0Ω	.1Ω	0Ω	0Ω	15KΩ		
V6	6AV6	10 Meg.	0Ω	0Ω	.1Ω	480KΩ	210KΩ	†600KΩ		
V7	6V6GT	0Ω	.1Ω	†600Ω	†240Ω	470KΩ	†150KΩ	0Ω	270Ω	
V8	5Y3GT	Inf.	50KΩ	Inf.	90Ω	Inf.	86Ω	Inf.	50KΩ	

† Measured From Pin 8 Of V8.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning cap fully closed and set pointer to last reference mark at low frequency end of dial.

Loop should be maintained in same relative position to chassis as when receiver is in cabinet.

Before aligning FM IF system make sure AM IF system is properly aligned.

AM ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High to stator of AM antenna section of tuning gang. Low side to chassis.	455KC (400∿ Mod.)	AM (second position clockwise.)	Tuning gang fully closed	Across voice coil	A1,A2 A3,A4	Adjust for max. output.
2.		Loop	1600KC	"	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust of max. output.
3.		Loop	1400KC	"	Tune for max. output.	"	A6	Adjust for max. output. Rock tuning gang thru 1400KC while adjusting A6.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100KΩ (± 1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4.	.01MFD	High side to stator of FM antenna section of tuning gang. Low side to chassis.	10.7MC (Unmod.)	FM (ext. counter clockwise)	Tuning gang fully closed	DC Probe to Point (A) Common to chassis.	A7,A8, A9,A10 A11	Adjust for maximum deflection. A7 peaks at two points, use the point with slug farthest out.
5.	.01MFD	"	"	"	"	DC Probe to Point (B) Common to Point (C)	A12	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
4.	.01MFD	High side to stator of FM antenna section. of tuning gang. Low side to chassis.	10.7MC (450KC Sweep)	FM (ext. counter clockwise)	Tuning gang fully closed	Vert.Amp. to Point (A) Low side to chassis.	A7,A8, A9,A10 A11	Disconnect stabilizer cap C2. Adjust for max. amplitude and symmetry as per Fig 1.
5.	.01MFD	"	"	"	"	Vert.Amp. to Point (B) Low side to chassis.	A12	Reconnect capacitor C2. Adjust A12 so that 10.7MC marker occurs at center of crossover lines. Slightly retouch A7 for maximum amplitude and straightness of diagonal lines as per Fig 2.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
6.	300Ω carbon res.	High side to terminal 1 of antenna strip thru 300Ω resistor. Low side to chassis.	105MC	FM	105MC	DC Probe to Point (A) Common to chassis.	A13, A14	Adjust for max. deflection.

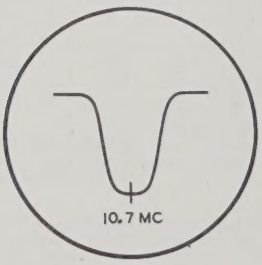

FIG. 1

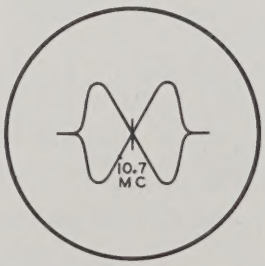

FIG. 2